

ALMANAC

XVIII

PLANETARY
PHENOMENA OF
PLUTO IN CE

The almanac XVIII contains a list of planetary phenomena of Pluto from the 1st millennium CE to the 6th millennium CE, from the 1st century CE to the 51st century CE.

Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 25

Attention, astronomical year style is used: The year -11 in astronomical counting style is the year 12 BCE in historical counting style.

minimum elong	-11 Aug 24 j 01:43	28°00'40	15°11'40	minimum elong	-3 Sep 12 j 12:08	17°00'13'10	16°36'25
	-11 Oct 24 j 21:17	0°00'00		retrograde	-3 Dec 24 j 19:46	19°00'50'08	
retrograde	-11 Dec 05 j 04:39	0°00'28'29		opposition	-2 Mar 11 j 09:04	18°00'27'48	17°45'18
	-10 Jan 16 j 14:16	30°00'00		min. Earth dist.	-2 Mar 13 j 11:30	18°00'24'16	29.37273 AU
opposition	-10 Feb 19 j 20:15	29°00'08'34	16°18'45	direct	-2 May 30 j 07:11	17°00'02'07	
min. Earth dist.	-10 Feb 22 j 12:46	29°00'04'11	30.60946 AU	max. Earth dist.	-2 Sep 13 j 02:37	19°00'39'29	31.22488 AU
direct	-10 May 11 j 05:10	27°00'45'11					
	-10 Aug 18 j 09:56	0°00'00		conjunction	-2 Sep 15 j 06:58	19°00'44'41	16°39'48
max. Earth dist.	-10 Aug 23 j 17:38	0°00'11'56	32.43914 AU	minimum elong	-2 Sep 15 j 06:51	19°00'44'40	16°39'48
				retrograde	-2 Dec 27 j 17:01	22°00'22'31	
conjunction	-10 Aug 26 j 16:05	0°00'18'32	15°27'12	opposition	-1 Mar 14 j 04:55	21°00'00'00	17°48'14
minimum elong	-10 Aug 26 j 15:44	0°00'18'30	15°27'13	min. Earth dist.	-1 Mar 16 j 04:27	20°00'56'40	29.25952 AU
retrograde	-10 Dec 07 j 19:03	2°00'47'37		direct	-1 Jun 02 j 02:10	19°00'34'10	
opposition	-9 Feb 22 j 10:09	1°00'27'19	16°35'00	max. Earth dist.	-1 Sep 16 j 01:05	22°00'12'36	31.11573 AU
min. Earth dist.	-9 Feb 25 j 02:29	1°00'22'56	30.42521 AU				
direct	-9 May 13 j 17:24	0°00'03'33		conjunction	-1 Sep 18 j 02:24	22°00'17'31	16°41'24
max. Earth dist.	-9 Aug 26 j 10:30	2°00'31'47	32.25596 AU	minimum elong	-1 Sep 18 j 02:19	22°00'17'31	16°41'23
				retrograde	-1 Dec 30 j 12:54	24°00'56'08	
conjunction	-9 Aug 29 j 06:49	2°00'38'15	15°41'30	opposition	00 Mar 16 j 01:26	23°00'33'26	17°49'14
minimum elong	-9 Aug 29 j 06:30	2°00'38'13	15°41'29	min. Earth dist.	00 Mar 17 j 23:39	23°00'30'11	29.15516 AU
retrograde	-9 Dec 10 j 11:45	5°00'08'35		direct	00 Jun 03 j 22:36	22°00'07'28	
opposition	-8 Feb 25 j 00:36	3°00'47'55	16°49'53	max. Earth dist.	00 Sep 17 j 23:01	24°00'46'47	31.01595 AU
min. Earth dist.	-8 Feb 27 j 14:30	3°00'43'39	30.24806 AU				
direct	-8 May 15 j 07:55	2°00'23'45		conjunction	00 Sep 19 j 22:06	24°00'51'30	16°41'10
max. Earth dist.	-8 Aug 28 j 03:08	4°00'53'22	32.08040 AU	minimum elong	00 Sep 19 j 22:05	24°00'51'30	16°41'11
				retrograde	01 Jan 01 j 10:32	27°00'30'46	
conjunction	-8 Aug 30 j 22:15	4°00'59'46	15°54'28	opposition	01 Mar 18 j 22:30	26°00'07'54	17°48'16
minimum elong	-8 Aug 30 j 21:57	4°00'59'44	15°54'29	min. Earth dist.	01 Mar 20 j 17:23	26°00'04'53	29.05979 AU
retrograde	-8 Dec 12 j 02:57	7°00'31'19		direct	01 Jun 06 j 20:42	24°00'41'49	
opposition	-7 Feb 26 j 16:08	6°00'10'17	17°03'18	max. Earth dist.	01 Sep 20 j 21:44	27°00'21'57	30.92544 AU
min. Earth dist.	-7 Mar 01 j 05:19	6°00'06'04	30.07895 AU				
direct	-7 May 17 j 20:45	4°00'45'46		conjunction	01 Sep 22 j 18:06	27°00'26'24	16°39'07
max. Earth dist.	-7 Aug 30 j 22:16	7°00'16'53	31.91357 AU	minimum elong	01 Sep 22 j 18:05	27°00'26'24	16°39'06
					01 Dec 16 j 17:39	0°00'00	
conjunction	-7 Sep 02 j 14:11	7°00'23'02	16°06'01	retrograde	02 Jan 04 j 06:47	0°00'06'15	
minimum elong	-7 Sep 02 j 13:55	7°00'23'00	16°06'01		02 Jan 23 j 03:14	30°00'00	
retrograde	-7 Dec 14 j 18:41	9°00'55'45		opposition	02 Mar 21 j 20:09	28°00'43'13	17°45'18
opposition	-6 Mar 01 j 08:27	8°00'34'24	17°15'10	min. Earth dist.	02 Mar 23 j 13:36	28°00'40'18	28.97360 AU
min. Earth dist.	-6 Mar 03 j 18:50	8°00'30'21	29.91862 AU	direct	02 Jun 09 j 16:55	27°00'17'02	
direct	-6 May 20 j 13:04	7°00'09'35		max. Earth dist.	02 Sep 23 j 21:04	29°00'57'53	30.84471 AU
max. Earth dist.	-6 Sep 02 j 16:06	9°00'41'58	31.75615 AU		02 Sep 24 j 18:07	0°00'00	
conjunction	-6 Sep 05 j 06:46	9°00'48'02	16°16'04	conjunction	02 Sep 25 j 14:21	0°00'02'03	16°35'11
minimum elong	-6 Sep 05 j 06:31	9°00'48'01	16°16'04	minimum elong	02 Sep 25 j 14:24	0°00'02'03	16°35'11
retrograde	-6 Dec 17 j 12:38	12°00'21'54		retrograde	03 Jan 07 j 04:41	2°00'42'20	
opposition	-5 Mar 04 j 01:23	11°00'00'15	17°25'21	opposition	03 Mar 24 j 17:51	1°00'19'10	17°40'18
min. Earth dist.	-5 Mar 06 j 10:07	10°00'56'18	29.76787 AU	min. Earth dist.	03 Mar 26 j 07:52	1°00'16'28	28.89690 AU
direct	-5 May 23 j 02:48	9°00'35'09			03 May 22 j 21:15	30°00'00	
max. Earth dist.	-5 Sep 05 j 12:59	12°00'08'59	31.60868 AU	direct	03 Jun 12 j 16:07	29°00'52'53	
					03 Jul 03 j 00:50	0°00'00	
conjunction	-5 Sep 08 j 00:05	12°00'14'45	16°24'31	max. Earth dist.	03 Sep 26 j 19:53	2°00'34'16	30.77397 AU
minimum elong	-5 Sep 07 j 23:52	12°00'14'44	16°24'30				
retrograde	-5 Dec 20 j 05:49	14°00'49'42		conjunction	03 Sep 28 j 10:46	2°00'38'12	16°29'21
opposition	-4 Mar 05 j 19:14	13°00'27'49	17°33'49	minimum elong	03 Sep 28 j 10:50	2°00'38'12	16°29'21
min. Earth dist.	-4 Mar 08 j 01:38	13°00'24'01	29.62665 AU	retrograde	04 Jan 10 j 01:25	5°00'18'51	
direct	-4 May 24 j 19:20	12°00'02'29		opposition	04 Mar 26 j 16:04	3°00'55'31	17°33'14
max. Earth dist.	-4 Sep 07 j 08:10	14°00'37'30	31.47110 AU	min. Earth dist.	04 Mar 28 j 04:08	3°00'52'58	28.83026 AU
				direct	04 Jun 14 j 13:11	2°00'29'11	
conjunction	-4 Sep 09 j 17:49	14°00'43'09	16°31'19	max. Earth dist.	04 Sep 28 j 20:12	5°00'11'07	30.71396 AU
minimum elong	-4 Sep 09 j 17:38	14°00'43'08	16°31'20				
retrograde	-4 Dec 22 j 01:19	17°00'19'09		conjunction	04 Sep 30 j 07:09	5°00'14'40	16°21'36
opposition	-3 Mar 08 j 13:42	15°00'57'02	17°40'29	minimum elong	04 Sep 30 j 07:18	5°00'14'41	16°21'37
min. Earth dist.	-3 Mar 10 j 17:49	15°00'53'23	29.49507 AU	retrograde	05 Jan 11 j 21:23	7°00'55'33	
direct	-3 May 27 j 12:51	14°00'31'30		opposition	05 Mar 29 j 14:29	7°00'32'07	17°24'06
max. Earth dist.	-3 Sep 10 j 06:11	17°00'07'50	31.34321 AU	min. Earth dist.	05 Mar 30 j 22:56	6°00'29'50	28.77423 AU
				direct	05 Jun 17 j 12:50	5°00'05'45	
conjunction	-3 Sep 12 j 12:17	17°00'13'11	16°36'26	max. Earth dist.	05 Oct 01 j 19:00	7°00'48'00	30.66531 AU

conjunction	05 Oct 03 j 03:29	7° 2 51'18	16°11'56	retrograde	14 Feb 04 j 09:17	1° M 16'13	
minimum elong	05 Oct 03 j 03:38	7° 2 51'18	16°11'56		14 Apr 19 j 00:09	30° R 2	
retrograde	06 Jan 14 j 18:36	10° 2 32'20		opposition	14 Apr 22 j 23:56	29° 2 53'22	14°32'03
opposition	06 Apr 01 j 13:03	9° 2 08'49	17°12'52	min. Earth dist.	14 Apr 23 j 02:59	29° 2 53'09	28.79380 AU
min. Earth dist.	06 Apr 02 j 18:33	9° 2 06'44	28.72980 AU	direct	14 Jul 11 j 20:43	28° 2 28'30	
direct	06 Jun 20 j 09:50	7° 2 42'27			14 Sep 26 j 06:42	0° M	
conjunction	06 Oct 05 j 23:47	10° 2 27'57	16°00'19	conjunction	14 Oct 26 j 10:42	1° M 10'00	13°22'55
minimum elong	06 Oct 05 j 23:59	10° 2 27'59	16°00'19	minimum elong	14 Oct 26 j 11:06	1° M 10'02	13°22'55
max. Earth dist.	06 Oct 04 j 19:53	10° 2 25'07	30.62881 AU	max. Earth dist.	14 Oct 26 j 09:10	1° M 09'51	30.76243 AU
retrograde	07 Jan 17 j 14:13	13° 2 09'03		retrograde	15 Feb 07 j 04:02	3° M 48'21	
opposition	07 Apr 04 j 11:43	11° 2 45'31	16°59'32	opposition	15 Apr 25 j 21:13	2° M 25'38	14°04'13
min. Earth dist.	07 Apr 05 j 13:51	11° 2 43'40	28.69723 AU	min. Earth dist.	15 Apr 25 j 22:01	2° M 25'34	28.84932 AU
direct	07 Jun 23 j 08:34	10° 2 19'13		direct	15 Jul 14 j 18:25	1° M 01'01	
conjunction	07 Oct 08 j 19:56	13° 2 04'34	15°46'47	conjunction	15 Oct 29 j 04:20	3° M 41'33	12°56'16
minimum elong	07 Oct 08 j 20:09	13° 2 04'35	15°46'46	minimum elong	15 Oct 29 j 04:43	3° M 41'35	12°56'16
max. Earth dist.	07 Oct 07 j 18:32	13° 2 01'59	30.60474 AU	max. Earth dist.	15 Oct 29 j 06:08	3° M 41'44	30.82669 AU
retrograde	08 Jan 20 j 10:49	15° 2 45'38		retrograde	16 Feb 09 j 20:57	6° M 19'07	
opposition	08 Apr 06 j 10:16	14° 2 22'07	16°44'09	opposition	16 Apr 27 j 17:54	4° M 56'33	13°34'58
min. Earth dist.	08 Apr 07 j 08:45	14° 2 20'32	28.67697 AU	min. Earth dist.	16 Apr 27 j 15:01	4° M 56'45	28.91455 AU
direct	08 Jun 25 j 06:18	12° 2 55'56		direct	16 Jul 16 j 17:10	3° M 32'12	
conjunction	08 Oct 10 j 16:07	15° 2 41'03	15°31'22	conjunction	16 Oct 30 j 21:17	6° M 11'41	12°28'22
minimum elong	08 Oct 10 j 16:24	15° 2 41'05	15°31'22	minimum elong	16 Oct 30 j 21:41	6° M 11'43	12°28'21
max. Earth dist.	08 Oct 09 j 19:28	15° 2 38'57	30.59318 AU	max. Earth dist.	16 Oct 31 j 01:42	6° M 12'07	30.90085 AU
retrograde	09 Jan 22 j 05:50	18° 2 22'01		retrograde	17 Feb 11 j 14:38	8° M 48'24	
opposition	09 Apr 09 j 09:03	16° 2 58'33	16°26'44	opposition	17 Apr 30 j 14:12	7° M 25'59	13°04'23
min. Earth dist.	09 Apr 10 j 04:40	16° 2 57'10	28.66873 AU	min. Earth dist.	17 Apr 30 j 08:24	7° M 26'23	28.99002 AU
direct	09 Jun 28 j 04:39	15° 2 32'32		direct	17 Jul 19 j 13:43	6° M 01'53	
conjunction	09 Oct 13 j 11:48	18° 2 17'18	15°14'07	conjunction	17 Nov 02 j 13:32	8° M 40'15	11°59'16
minimum elong	09 Oct 13 j 12:05	18° 2 17'20	15°14'06	minimum elong	17 Nov 02 j 13:56	8° M 40'17	11°59'16
max. Earth dist.	09 Oct 12 j 17:41	18° 2 15'28	30.59384 AU	max. Earth dist.	17 Nov 02 j 22:06	8° M 41'05	30.98542 AU
retrograde	10 Jan 25 j 03:22	20° 2 58'05		retrograde	18 Feb 14 j 06:12	11° M 16'03	
opposition	10 Apr 12 j 07:35	19° 2 34'42	16°07'22	opposition	18 May 03 j 09:51	9° M 53'48	12°32'34
min. Earth dist.	10 Apr 12 j 23:05	19° 2 33'37	28.67229 AU	min. Earth dist.	18 May 03 j 00:49	9° M 54'25	29.07591 AU
direct	10 Jul 01 j 01:57	18° 2 08'53		direct	18 Jul 22 j 11:51	8° M 29'59	
conjunction	10 Oct 16 j 07:33	20° 2 53'13	14°55'05	conjunction	18 Nov 05 j 05:07	11° M 07'09	11°29'04
minimum elong	10 Oct 16 j 07:53	20° 2 53'15	14°55'05	minimum elong	18 Nov 05 j 05:31	11° M 07'12	11°29'03
max. Earth dist.	10 Oct 15 j 17:45	20° 2 51'49	30.60612 AU	max. Earth dist.	18 Nov 05 j 16:08	11° M 08'14	31.08064 AU
retrograde	11 Jan 27 j 22:01	23° 2 33'42		retrograde	19 Feb 16 j 21:27	13° M 42'00	
opposition	11 Apr 15 j 05:59	22° 2 10'26	15°46'08	opposition	19 May 06 j 04:41	12° M 19'56	11°59'37
min. Earth dist.	11 Apr 15 j 19:17	22° 2 09'31	28.68698 AU	min. Earth dist.	19 May 05 j 15:53	12° M 20'48	29.17283 AU
direct	11 Jul 04 j 00:36	20° 2 44'51		direct	19 Jul 25 j 06:40	10° M 56'26	
conjunction	11 Oct 19 j 02:54	23° 2 28'38	14°34'23	conjunction	19 Nov 07 j 20:12	13° M 32'24	10°57'51
minimum elong	11 Oct 19 j 03:14	23° 2 28'40	14°34'23	minimum elong	19 Nov 07 j 20:35	13° M 32'26	10°57'51
max. Earth dist.	11 Oct 18 j 15:36	23° 2 27'29	30.62962 AU	max. Earth dist.	19 Nov 08 j 11:37	13° M 33'54	31.18691 AU
retrograde	12 Jan 30 j 18:47	26° 2 08'43			19 Dec 17 j 14:33	15° M	
opposition	12 Apr 17 j 04:12	24° 2 45'35	15°23'06	retrograde	20 Feb 19 j 10:07	16° M 06'14	
min. Earth dist.	12 Apr 17 j 13:21	24° 2 44'57	28.71240 AU		20 Apr 28 j 07:11	15° R M	
direct	12 Jul 05 j 23:43	23° 2 20'13		opposition	20 May 07 j 23:08	14° M 44'24	11°25'38
conjunction	12 Oct 20 j 21:56	26° 2 03'21	14°12'04	min. Earth dist.	20 May 07 j 07:32	14° M 45'28	29.28074 AU
minimum elong	12 Oct 20 j 22:18	26° 2 03'23	14°12'03	direct	20 Jul 27 j 02:19	13° M 21'15	
max. Earth dist.	12 Oct 20 j 14:26	26° 2 02'35	30.66366 AU		20 Oct 15 j 19:35	15° M	
retrograde	13 Feb 01 j 13:19	28° 2 42'58		conjunction	20 Nov 09 j 10:19	15° M 55'57	10°25'43
opposition	13 Apr 20 j 02:22	27° 2 19'58	14°58'23	minimum elong	20 Nov 09 j 10:42	15° M 56'00	10°25'43
min. Earth dist.	13 Apr 20 j 09:29	27° 2 19'28	28.74810 AU	max. Earth dist.	20 Nov 10 j 04:02	15° M 57'40	31.30416 AU
direct	13 Jul 08 j 20:49	25° 2 54'51		retrograde	21 Feb 21 j 01:20	18° M 28'47	
conjunction	13 Oct 23 j 16:35	28° 2 37'12	13°48'13	opposition	21 May 10 j 16:50	17° M 07'12	10°50'44
minimum elong	13 Oct 23 j 16:56	28° 2 37'14	13°48'13	min. Earth dist.	21 May 09 j 20:57	17° M 08'33	29.39963 AU
max. Earth dist.	13 Oct 23 j 11:58	28° 2 36'44	30.70810 AU	direct	21 Jul 29 j 19:41	15° M 44'25	
	13 Nov 28 j 17:42	0° M		conjunction	21 Nov 12 j 00:00	18° M 17'52	9°52'48

minimum elong	21 Nov 12 j 00:22	18° M 17'54	9°52'48	minimum elong	29 Nov 29 j 12:11	6° Δ 11'49	5°12'39
max. Earth dist.	21 Nov 12 j 21:52	18° M 19'58	31.43197 AU	max. Earth dist.	29 Dec 01 j 04:58	6° Δ 15'31	32.75100 AU
retrograde	22 Feb 23 j 12:57	20° M 49'39		retrograde	30 Mar 13 j 01:27	8° Δ 34'28	
min. Earth dist.	22 May 12 j 11:54	19° M 29'50	29.52889 AU	min. Earth dist.	30 May 30 j 05:04	7° Δ 18'25	30.85448 AU
opposition	22 May 13 j 09:51	19° M 28'21	10°15'01	opposition	30 Jun 01 j 00:23	7° Δ 15'39	5°13'51
direct	22 Aug 01 j 12:48	18° M 05'59		direct	30 Aug 20 j 10:22	5° Δ 56'31	
conjunction	22 Nov 14 j 12:52	20° M 38'07	9°19'10	conjunction	30 Dec 01 j 19:14	8° Δ 17'48	4°36'52
minimum elong	22 Nov 14 j 13:14	20° M 38'09	9°19'10	minimum elong	30 Dec 01 j 19:26	8° Δ 17'49	4°36'51
max. Earth dist.	22 Nov 15 j 12:57	20° M 40'26	31.56977 AU	max. Earth dist.	30 Dec 03 j 15:31	8° Δ 21'47	32.94595 AU
retrograde	23 Feb 26 j 02:17	23° M 08'50		retrograde	31 Mar 15 j 05:49	10° Δ 39'16	
min. Earth dist.	23 May 15 j 00:08	21° M 49'35	29.66781 AU	min. Earth dist.	31 Jun 01 j 14:09	9° Δ 23'36	31.05100 AU
opposition	23 May 16 j 02:06	21° M 47'51	9°38'38	opposition	31 Jun 03 j 10:48	9° Δ 20'46	4°35'39
direct	23 Aug 04 j 05:35	20° M 25'53		direct	31 Aug 22 j 21:47	8° Δ 02'02	
conjunction	23 Nov 17 j 01:06	22° M 56'43	8°44'57	conjunction	31 Dec 04 j 01:34	10° Δ 21'55	4°01'09
minimum elong	23 Nov 17 j 01:26	22° M 56'45	8°44'57	minimum elong	31 Dec 04 j 01:43	10° Δ 21'56	4°01'09
max. Earth dist.	23 Nov 18 j 04:37	22° M 59'20	31.71656 AU	max. Earth dist.	31 Dec 05 j 23:23	10° Δ 26'01	33.14772 AU
retrograde	24 Feb 28 j 14:08	25° M 26'22		retrograde	32 Mar 16 j 11:46	12° Δ 42'13	
opposition	24 May 17 j 17:52	24° M 05'42	9°01'41	min. Earth dist.	32 Jun 02 j 20:11	11° Δ 27'05	31.25462 AU
min. Earth dist.	24 May 16 j 14:01	24° M 07'32	29.81562 AU	opposition	32 Jun 04 j 20:21	11° Δ 24'02	3°57'36
direct	24 Aug 05 j 20:07	22° M 44'09		direct	32 Aug 24 j 07:23	10° Δ 05'42	
conjunction	24 Nov 18 j 12:42	25° M 13'39	8°10'15	conjunction	32 Dec 05 j 07:19	12° Δ 24'15	3°25'34
minimum elong	24 Nov 18 j 13:01	25° M 13'41	8°10'14	minimum elong	32 Dec 05 j 07:28	12° Δ 24'15	3°25'33
max. Earth dist.	24 Nov 19 j 18:41	25° M 16'29	31.87182 AU	max. Earth dist.	32 Dec 07 j 08:03	12° Δ 28'34	33.35632 AU
retrograde	25 Mar 02 j 02:15	27° M 42'11		retrograde	33 Mar 18 j 17:21	14° Δ 43'24	
min. Earth dist.	25 May 19 j 01:30	26° M 23'54	29.97156 AU	min. Earth dist.	33 Jun 05 j 03:35	13° Δ 28'40	31.46534 AU
opposition	25 May 20 j 08:49	26° M 21'50	8°24'17	opposition	33 Jun 07 j 05:20	13° Δ 25'32	3°19'45
direct	25 Aug 08 j 12:46	25° M 00'43		direct	33 Aug 26 j 14:21	12° Δ 07'38	
conjunction	25 Nov 20 j 23:30	27° M 28'53	7°35'09	conjunction	33 Dec 07 j 12:22	14° Δ 24'51	2°50'11
minimum elong	25 Nov 20 j 23:48	27° M 28'55	7°35'09	minimum elong	33 Dec 07 j 12:29	14° Δ 24'51	2°50'11
max. Earth dist.	25 Nov 22 j 07:50	27° M 31'55	32.03455 AU	max. Earth dist.	33 Dec 09 j 15:11	14° Δ 29'19	33.57165 AU
retrograde	26 Mar 04 j 14:29	29° M 56'17		retrograde	34 Mar 20 j 22:39	16° Δ 42'52	
opposition	26 May 22 j 23:10	28° M 36'15	7°46'31	min. Earth dist.	34 Jun 07 j 08:48	15° Δ 28'38	31.68252 AU
min. Earth dist.	26 May 21 j 13:50	28° M 38'26	30.13501 AU	opposition	34 Jun 09 j 13:23	15° Δ 25'21	2°42'09
direct	26 Aug 11 j 03:19	27° M 15'33		direct	34 Aug 28 j 23:54	14° Δ 07'53	
conjunction	26 Nov 23 j 09:51	29° M 42'22	6°59'46	conjunction	34 Dec 09 j 16:44	16° Δ 23'48	2°15'03
minimum elong	26 Nov 23 j 10:08	29° M 42'24	6°59'45	minimum elong	34 Dec 09 j 16:49	16° Δ 23'49	2°15'02
max. Earth dist.	26 Nov 24 j 20:53	29° M 45'38	32.20427 AU	max. Earth dist.	34 Dec 11 j 21:15	16° Δ 28'23	33.79283 AU
retrograde	26 Dec 01 j 07:45	0° Δ		retrograde	35 Mar 23 j 05:16	18° Δ 40'42	
min. Earth dist.	27 Mar 07 j 00:22	2° Δ 08'37		min. Earth dist.	35 Jun 09 j 14:21	17° Δ 26'55	31.90567 AU
opposition	27 May 24 j 00:48	0° Δ 51'13	30.30513 AU	opposition	35 Jun 11 j 20:46	17° Δ 23'32	2°04'53
direct	27 May 25 j 12:31	0° Δ 48'54	7°08'31	direct	35 Aug 31 j 06:34	16° Δ 06'30	
conjunction	27 Jun 28 j 03:45	30° R M		conjunction	35 Dec 11 j 20:37	18° Δ 21'10	1°40'12
minimum elong	27 Aug 13 j 19:14	29° M 28'36		minimum elong	35 Dec 11 j 20:41	18° Δ 21'11	1°40'13
max. Earth dist.	27 Sep 27 j 11:19	0° Δ		max. Earth dist.	35 Dec 14 j 03:41	18° Δ 25'56	34.01940 AU
retrograde	27 Nov 25 j 19:20	1° Δ 54'03	6°24'10	retrograde	36 Mar 24 j 09:06	20° Δ 36'57	
min. Earth dist.	27 Nov 25 j 19:35	1° Δ 54'05	6°24'10	min. Earth dist.	36 Jun 10 j 19:37	19° Δ 23'37	32.13382 AU
opposition	27 Nov 27 j 07:50	1° Δ 57'25	32.38029 AU	opposition	36 Jun 13 j 03:34	19° Δ 20'10	1°28'00
direct	28 Mar 08 j 10:07	4° Δ 19'07		direct	36 Sep 01 j 14:52	18° Δ 03'34	
conjunction	28 May 25 j 11:00	3° Δ 02'11	30.48183 AU	conjunction	36 Dec 12 j 23:38	20° Δ 16'58	1°05'43
minimum elong	28 May 27 j 01:21	2° Δ 59'43	6°30'21	minimum elong	36 Dec 12 j 23:41	20° Δ 16'59	1°05'43
max. Earth dist.	28 Aug 15 j 07:53	1° Δ 39'49		max. Earth dist.	36 Dec 15 j 07:34	20° Δ 21'46	34.25034 AU
retrograde	28 Nov 27 j 04:05	4° Δ 03'52	5°48'26	retrograde	37 Mar 26 j 13:07	22° Δ 31'39	
min. Earth dist.	28 Nov 27 j 04:20	4° Δ 03'54	5°48'26	min. Earth dist.	37 Jun 12 j 23:25	21° Δ 18'48	32.36635 AU
opposition	28 Nov 28 j 19:52	4° Δ 07'31	32.56254 AU	opposition	37 Jun 15 j 09:44	21° Δ 15'14	0°51'32
direct	29 Mar 10 j 16:49	6° Δ 27'45		direct	37 Sep 03 j 20:42	19° Δ 59'04	
conjunction	29 May 27 j 21:19	5° Δ 11'13	30.66481 AU	conjunction	37 Dec 15 j 02:23	22° Δ 11'14	0°31'38
minimum elong	29 May 29 j 13:23	5° Δ 08'38	5°52'06	minimum elong	37 Dec 15 j 02:24	22° Δ 11'15	0°31'39
max. Earth dist.	29 Aug 17 j 22:46	3° Δ 49'08		max. Earth dist.	37 Dec 17 j 12:53	22° Δ 16'13	34.48489 AU
retrograde	29 Nov 29 j 11:59	6° Δ 11'48	5°12'39	retrograde	38 Mar 28 j 13:41	24° Δ 24'50	

min. Earth dist.	38 Jun 15 j 04:19	23° \mathring{A} 12'21	32.60220 AU	minimum elong	45 Dec 29 j 02:07	6° \mathring{B} 29'17	3°43'19
opposition	38 Jun 17 j 15:06	23° \mathring{A} 08'45	0°15'33	max. Earth dist.	45 Dec 31 j 21:27	6° \mathring{B} 34'40	36.44037 AU
direct	38 Sep 06 j 04:50	21° \mathring{A} 53'01		retrograde	46 Apr 11 j 12:11	8° \mathring{B} 34'37	
desc. node	38 Nov 24 j 19:53	23° \mathring{A} 19'30		min. Earth dist.	46 Jun 29 j 13:10	7° \mathring{B} 25'05	34.57173 AU
				opposition	46 Jul 02 j 10:57	7° \mathring{B} 21'00	-4°-11'-57
				direct	46 Sep 21 j 04:29	6° \mathring{B} 08'10	
conjunction	38 Dec 17 j 04:28	24° \mathring{A} 03'58	0°-2'-5				
minimum elong	38 Dec 17 j 04:27	24° \mathring{A} 03'58	0°02'06				
behind sun begin	38 Dec 16 j 22:05	24° \mathring{A} 03'27		conjunction	46 Dec 30 j 23:43	8° \mathring{B} 10'02	-4°-12'-37
behind sun end	38 Dec 17 j 10:48	24° \mathring{A} 04'28		minimum elong	46 Dec 30 j 23:35	8° \mathring{B} 10'01	4°12'37
max. Earth dist.	38 Dec 19 j 15:08	24° \mathring{A} 08'55	34.72225 AU	max. Earth dist.	47 Jan 02 j 20:48	8° \mathring{B} 15'31	36.69527 AU
retrograde	39 Mar 30 j 16:06	26° \mathring{A} 16'28		retrograde	47 Apr 13 j 08:07	10° \mathring{B} 14'27	
min. Earth dist.	39 Jun 17 j 06:43	25° \mathring{A} 04'27	32.84071 AU	min. Earth dist.	47 Jul 01 j 12:54	9° \mathring{B} 05'14	34.82898 AU
opposition	39 Jun 19 j 19:50	25° \mathring{A} 00'44	0°-19'-56	opposition	47 Jul 04 j 10:45	9° \mathring{B} 01'10	-4°-42'-31
direct	39 Sep 08 j 10:17	23° \mathring{A} 45'23		direct	47 Sep 23 j 04:58	7° \mathring{B} 48'43	
conjunction	39 Dec 19 j 05:54	25° \mathring{A} 55'07	0°-35'-14	conjunction	48 Jan 01 j 20:38	9° \mathring{B} 49'35	-4°-41'-18
minimum elong	39 Dec 19 j 05:52	25° \mathring{A} 55'07	0°35'15	minimum elong	48 Jan 01 j 20:30	9° \mathring{B} 49'34	4°41'19
max. Earth dist.	39 Dec 21 j 18:31	26° \mathring{A} 00'12	34.96164 AU	max. Earth dist.	48 Jan 04 j 18:23	9° \mathring{B} 55'06	36.95208 AU
retrograde	40 Mar 31 j 15:56	28° \mathring{A} 06'34		retrograde	48 Apr 14 j 05:26	11° \mathring{B} 53'07	
min. Earth dist.	40 Jun 18 j 10:49	26° \mathring{A} 54'51	33.08129 AU	min. Earth dist.	48 Jul 02 j 10:27	10° \mathring{B} 44'19	35.08781 AU
opposition	40 Jun 21 j 00:07	26° \mathring{A} 51'09	0°-54'-53	opposition	48 Jul 05 j 09:56	10° \mathring{B} 40'11	-5°-12'-24
direct	40 Sep 09 j 14:54	25° \mathring{A} 36'11		direct	48 Sep 24 j 03:42	9° \mathring{B} 28'07	
conjunction	40 Dec 20 j 06:51	27° \mathring{A} 44'42	-1°-7'-56	conjunction	49 Jan 02 j 17:09	11° \mathring{B} 28'01	-5°-9'-21
minimum elong	40 Dec 20 j 06:49	27° \mathring{A} 44'42	1°07'57	minimum elong	49 Jan 02 j 16:59	11° \mathring{B} 28'00	5°09'22
max. Earth dist.	40 Dec 22 j 20:12	27° \mathring{A} 49'49	35.20290 AU	max. Earth dist.	49 Jan 05 j 15:40	11° \mathring{B} 33'32	37.20995 AU
retrograde	41 Apr 02 j 16:28	29° \mathring{A} 55'05		retrograde	49 Apr 16 j 03:43	13° \mathring{B} 30'42	
min. Earth dist.	41 Jun 20 j 12:19	28° \mathring{A} 43'46	33.32370 AU	min. Earth dist.	49 Jul 04 j 08:44	12° \mathring{B} 22'13	35.34769 AU
opposition	41 Jun 23 j 03:31	28° \mathring{A} 39'58	-1°-29'-16	opposition	49 Jul 07 j 08:40	12° \mathring{B} 18'05	-5°-41'-35
direct	41 Sep 11 j 18:46	27° \mathring{A} 25'21		direct	49 Sep 26 j 00:09	11° \mathring{B} 06'23	
conjunction	41 Dec 22 j 07:03	29° \mathring{A} 32'41	-1°-40'-8	conjunction	50 Jan 04 j 13:22	13° \mathring{B} 05'21	-5°-36'-47
minimum elong	41 Dec 22 j 07:00	29° \mathring{A} 32'41	1°40'09	minimum elong	50 Jan 04 j 13:13	13° \mathring{B} 05'20	5°36'49
max. Earth dist.	41 Dec 24 j 21:31	29° \mathring{A} 37'50	35.44574 AU	max. Earth dist.	50 Jan 07 j 13:10	13° \mathring{B} 10'56	37.46836 AU
	42 Jan 05 j 04:32	0° \mathring{B}		retrograde	50 Apr 18 j 00:21	15° \mathring{B} 07'10	
retrograde	42 Apr 04 j 18:06	1° \mathring{B} 42'00		min. Earth dist.	50 Jul 06 j 06:34	13° \mathring{B} 59'02	35.60758 AU
min. Earth dist.	42 Jun 22 j 14:19	0° \mathring{B} 31'00	33.56816 AU	opposition	50 Jul 09 j 06:49	13° \mathring{B} 54'53	-6°-10'-5
opposition	42 Jun 25 j 06:22	0° \mathring{B} 27'10	-2°-3'-4	direct	50 Sep 27 j 23:12	12° \mathring{B} 43'33	
	42 Jul 14 j 15:07	30° \mathring{R} \mathring{A}					
direct	42 Sep 13 j 19:50	29° \mathring{A} 12'54		conjunction	51 Jan 06 j 09:02	14° \mathring{B} 41'36	-6°-3'-36
	42 Nov 10 j 18:59	0° \mathring{B}		minimum elong	51 Jan 06 j 08:51	14° \mathring{B} 41'35	6°03'37
				max. Earth dist.	51 Jan 09 j 08:17	14° \mathring{B} 47'06	37.72632 AU
conjunction	42 Dec 24 j 06:46	1° \mathring{B} 19'04	-2°-11'-47	retrograde	51 Apr 19 j 22:21	16° \mathring{B} 42'34	
minimum elong	42 Dec 24 j 06:41	1° \mathring{B} 19'04	2°11'49	min. Earth dist.	51 Jul 08 j 03:13	15° \mathring{B} 34'47	35.86696 AU
max. Earth dist.	42 Dec 26 j 22:54	1° \mathring{B} 24'19	35.69061 AU	opposition	51 Jul 11 j 04:30	15° \mathring{B} 30'36	-6°-37'-55
retrograde	43 Apr 06 j 16:39	3° \mathring{B} 27'20		direct	51 Sep 29 j 19:58	14° \mathring{B} 19'37	
min. Earth dist.	43 Jun 24 j 15:13	2° \mathring{B} 16'40	33.81482 AU				
opposition	43 Jun 27 j 08:22	2° \mathring{B} 12'48	-2°-36'-16	conjunction	52 Jan 08 j 04:30	16° \mathring{B} 16'45	-6°-29'-47
direct	43 Sep 15 j 23:38	0° \mathring{B} 58'52		minimum elong	52 Jan 08 j 04:19	16° \mathring{B} 16'44	6°29'48
				max. Earth dist.	52 Jan 11 j 05:07	16° \mathring{B} 22'19	37.98335 AU
conjunction	43 Dec 26 j 05:45	3° \mathring{B} 03'54	-2°-42'-53	retrograde	52 Apr 20 j 16:58	18° \mathring{B} 16'53	
minimum elong	43 Dec 26 j 05:39	3° \mathring{B} 03'54	2°42'54	min. Earth dist.	52 Jul 09 j 01:17	17° \mathring{B} 09'19	36.12517 AU
max. Earth dist.	43 Dec 28 j 22:19	3° \mathring{B} 09'09	35.93781 AU	opposition	52 Jul 12 j 01:50	17° \mathring{B} 05'12	-7°-5'-3
retrograde	44 Apr 07 j 17:02	5° \mathring{B} 11'09		direct	52 Sep 30 j 18:20	15° \mathring{B} 54'32	
min. Earth dist.	44 Jun 25 j 14:52	4° \mathring{B} 00'52	34.06437 AU				
opposition	44 Jun 28 j 09:56	3° \mathring{B} 56'55	-3°-8'-49	conjunction	53 Jan 08 j 23:22	17° \mathring{B} 50'45	-6°-55'-20
direct	44 Sep 17 j 01:07	2° \mathring{B} 43'20		minimum elong	53 Jan 08 j 23:11	17° \mathring{B} 50'44	6°55'20
				max. Earth dist.	53 Jan 11 j 23:22	17° \mathring{B} 56'14	38.23905 AU
conjunction	44 Dec 27 j 04:14	4° \mathring{B} 47'17	-3°-13'-23	retrograde	53 Apr 22 j 09:54	19° \mathring{B} 50'03	
minimum elong	44 Dec 27 j 04:08	4° \mathring{B} 47'16	3°13'25	min. Earth dist.	53 Jul 10 j 20:40	18° \mathring{B} 42'49	36.38197 AU
max. Earth dist.	44 Dec 29 j 23:14	4° \mathring{B} 52'41	36.18776 AU	opposition	53 Jul 13 j 22:33	18° \mathring{B} 38'38	-7°-31'-31
retrograde	45 Apr 09 j 14:18	6° \mathring{B} 53'33		direct	53 Oct 02 j 16:56	17° \mathring{B} 28'15	
min. Earth dist.	45 Jun 27 j 15:23	5° \mathring{B} 43'35	34.31670 AU				
opposition	45 Jun 30 j 10:53	5° \mathring{B} 39'37	-3°-40'-43	conjunction	54 Jan 10 j 17:54	19° \mathring{B} 23'34	-7°-20'-16
direct	45 Sep 19 j 04:08	4° \mathring{B} 26'24		minimum elong	54 Jan 10 j 17:42	19° \mathring{B} 23'34	7°20'17
				max. Earth dist.	54 Jan 13 j 18:44	19° \mathring{B} 29'05	38.49319 AU
conjunction	45 Dec 29 j 02:14	6° \mathring{B} 29'17	-3°-43'-18	retrograde	54 Apr 24 j 02:44	21° \mathring{B} 22'02	

min. Earth dist.	54 Jul 12 j 17:30	20°☾14'59	36.63751 AU	max. Earth dist.	62 Jan 25 j 11:05	1°☾11'47	40.51139 AU
opposition	54 Jul 15 j 18:42	20°☾10'52	-7°-57'-18	retrograde	62 May 05 j 15:32	2°☾58'51	
direct	54 Oct 04 j 14:33	19°☾00'45		min. Earth dist.	62 Jul 24 j 15:34	1°☾53'51	38.67048 AU
				opposition	62 Jul 27 j 19:42	1°☾49'43	-10°-59'-4
conjunction	55 Jan 12 j 11:57	20°☾55'11	-7°-44'-34	direct	62 Oct 16 j 16:32	0°☾41'53	
minimum elong	55 Jan 12 j 11:44	20°☾55'10	7°44'34				
max. Earth dist.	55 Jan 15 j 13:01	21°☾00'40	38.74630 AU	conjunction	63 Jan 23 j 21:50	2°☾30'06	-10°-36'-14
retrograde	55 Apr 25 j 20:01	22°☾52'49		minimum elong	63 Jan 23 j 21:38	2°☾30'06	10°36'15
min. Earth dist.	55 Jul 14 j 12:15	21°☾46'02	36.89216 AU	max. Earth dist.	63 Jan 27 j 01:15	2°☾35'29	40.76003 AU
opposition	55 Jul 17 j 14:21	21°☾41'52	-8°-22'-25	retrograde	63 May 07 j 09:22	4°☾22'01	
direct	55 Oct 06 j 10:50	20°☾32'02		min. Earth dist.	63 Jul 26 j 07:49	3°☾17'17	38.92018 AU
				opposition	63 Jul 29 j 12:09	3°☾13'09	-11°-18'-50
conjunction	56 Jan 14 j 05:17	22°☾25'34	-8°-8'-14	direct	63 Oct 18 j 06:42	2°☾05'36	
minimum elong	56 Jan 14 j 05:05	22°☾25'33	8°08'16				
max. Earth dist.	56 Jan 17 j 06:31	22°☾31'02	38.99872 AU	conjunction	64 Jan 25 j 12:41	3°☾53'10	-10°-54'-58
retrograde	56 Apr 26 j 15:00	24°☾22'25		minimum elong	64 Jan 25 j 12:28	3°☾53'09	10°54'59
min. Earth dist.	56 Jul 15 j 07:07	23°☾15'52	37.14668 AU	max. Earth dist.	64 Jan 28 j 17:02	3°☾58'35	41.00612 AU
opposition	56 Jul 18 j 09:41	23°☾11'42	-8°-46'-50	retrograde	64 May 08 j 00:04	5°☾44'27	
direct	56 Oct 07 j 04:51	22°☾02'08		min. Earth dist.	64 Jul 27 j 01:06	4°☾39'53	39.16693 AU
				opposition	64 Jul 30 j 04:18	4°☾35'50	-11°-37'-59
conjunction	57 Jan 14 j 22:31	23°☾54'49	-8°-31'-16	direct	64 Oct 18 j 23:19	3°☾28'33	
minimum elong	57 Jan 14 j 22:19	23°☾54'48	8°31'16				
max. Earth dist.	57 Jan 18 j 01:13	24°☾00'21	39.25116 AU	conjunction	65 Jan 26 j 03:19	5°☾15'27	-11°-13'-8
retrograde	57 Apr 28 j 08:26	25°☾50'52		minimum elong	65 Jan 26 j 03:07	5°☾15'26	11°13'08
min. Earth dist.	57 Jul 17 j 01:43	24°☾44'33	37.40123 AU	max. Earth dist.	65 Jan 29 j 06:22	5°☾20'45	41.24920 AU
opposition	57 Jul 20 j 04:21	24°☾40'24	-9°-10'-33	retrograde	65 May 09 j 14:48	7°☾06'05	
direct	57 Oct 08 j 23:36	23°☾31'06		min. Earth dist.	65 Jul 28 j 16:00	6°☾01'47	39.41055 AU
				opposition	65 Jul 31 j 19:53	5°☾57'43	-11°-56'-33
conjunction	58 Jan 16 j 15:12	25°☾22'59	-8°-53'-39	direct	65 Oct 20 j 14:42	4°☾50'41	
minimum elong	58 Jan 16 j 15:00	25°☾22'58	8°53'41				
max. Earth dist.	58 Jan 19 j 17:22	25°☾28'26	39.50374 AU	conjunction	66 Jan 27 j 17:38	6°☾36'55	-11°-30'-44
retrograde	58 Apr 30 j 02:59	27°☾18'16		minimum elong	66 Jan 27 j 17:25	6°☾36'54	11°30'45
min. Earth dist.	58 Jul 18 j 18:36	26°☾12'15	37.65601 AU	max. Earth dist.	66 Jan 30 j 20:53	6°☾42'12	41.48902 AU
opposition	58 Jul 21 j 22:37	26°☾08'03	-9°-33'-36	retrograde	66 May 11 j 02:41	8°☾26'56	
direct	58 Oct 10 j 16:42	24°☾59'01		min. Earth dist.	66 Jul 30 j 08:47	7°☾22'46	39.65104 AU
				opposition	66 Aug 02 j 11:17	7°☾18'46	-12°-14'-31
conjunction	59 Jan 18 j 07:33	26°☾50'08	-9°-15'-25	direct	66 Oct 22 j 08:26	6°☾11'58	
minimum elong	59 Jan 18 j 07:20	26°☾50'07	9°15'25				
max. Earth dist.	59 Jan 21 j 11:08	26°☾55'39	39.75636 AU	conjunction	67 Jan 29 j 07:31	7°☾57'33	-11°-47'-47
retrograde	59 May 01 j 17:15	28°☾44'42		minimum elong	67 Jan 29 j 07:20	7°☾57'32	11°47'48
min. Earth dist.	59 Jul 20 j 13:09	27°☾38'54	37.91073 AU	max. Earth dist.	67 Feb 01 j 10:35	8°☾02'47	41.72601 AU
opposition	59 Jul 23 j 16:32	27°☾34'44	-9°-55'-57	retrograde	67 May 12 j 15:24	9°☾46'57	
direct	59 Oct 12 j 12:04	26°☾26'01		min. Earth dist.	67 Jul 31 j 23:16	8°☾42'59	39.88880 AU
				opposition	67 Aug 04 j 02:10	8°☾38'59	-12°-31'-54
conjunction	60 Jan 19 j 23:35	28°☾16'21	-9°-36'-32	direct	67 Oct 24 j 00:54	7°☾32'24	
minimum elong	60 Jan 19 j 23:22	28°☾16'20	9°36'34				
max. Earth dist.	60 Jan 23 j 03:00	28°☾21'51	40.00891 AU	conjunction	68 Jan 30 j 21:02	9°☾17'20	-12°-4'-16
	60 Apr 03 j 23:20	0°☾		minimum elong	68 Jan 30 j 20:50	9°☾17'19	12°04'17
retrograde	60 May 02 j 07:47	0°☾10'14		max. Earth dist.	68 Feb 02 j 23:35	9°☾22'30	41.96059 AU
	60 May 31 j 07:00	30°☾		retrograde	68 May 13 j 07:10	11°☾06'08	
min. Earth dist.	60 Jul 21 j 05:21	29°☾04'45	38.16512 AU	min. Earth dist.	68 Aug 01 j 14:05	10°☾02'20	40.12466 AU
opposition	60 Jul 24 j 09:59	29°☾00'32	-10°-17'-39	opposition	68 Aug 04 j 16:50	9°☾58'22	-12°-48'-41
direct	60 Oct 13 j 07:06	27°☾52'06		direct	68 Oct 24 j 13:25	8°☾52'00	
conjunction	61 Jan 20 j 15:12	29°☾41'43	-9°-57'-2	conjunction	69 Jan 31 j 10:23	10°☾36'18	-12°-20'-12
minimum elong	61 Jan 20 j 14:59	29°☾41'43	9°57'03	minimum elong	69 Jan 31 j 10:12	10°☾36'18	12°20'13
max. Earth dist.	61 Jan 23 j 19:06	29°☾47'13	40.26074 AU	max. Earth dist.	69 Feb 03 j 13:51	10°☾41'30	42.19350 AU
	61 Jan 31 j 05:16	0°☾		retrograde	69 May 14 j 20:18	12°☾24'30	
retrograde	61 May 04 j 00:19	1°☾34'56		min. Earth dist.	69 Aug 03 j 04:49	11°☾20'53	40.35880 AU
min. Earth dist.	61 Jul 22 j 23:00	0°☾29'41	38.41865 AU	opposition	69 Aug 06 j 07:04	11°☾16'57	-13°-4'-52
opposition	61 Jul 26 j 03:11	0°☾25'31	-10°-38'-41	direct	69 Oct 26 j 04:10	10°☾10'49	
	61 Aug 15 j 01:04	30°☾					
direct	61 Oct 14 j 23:42	29°☾17'23		conjunction	70 Feb 01 j 23:22	11°☾54'31	-12°-35'-34
	61 Dec 11 j 23:25	0°☾		minimum elong	70 Feb 01 j 23:10	11°☾54'30	12°35'35
				max. Earth dist.	70 Feb 05 j 01:44	11°☾59'37	42.42493 AU
conjunction	62 Jan 22 j 06:44	1°☾06'18	-10°-16'-56	retrograde	70 May 16 j 10:35	13°☾42'08	
minimum elong	62 Jan 22 j 06:31	1°☾06'17	10°16'58	min. Earth dist.	70 Aug 04 j 17:48	12°☾38'45	40.59162 AU

opposition	70 Aug 07 j 20:49	12°34'48	-13°-20'-29	opposition	78 Aug 18 j 02:16	22°35'32	-15°-5'-47
direct	70 Oct 27 j 16:16	11°28'53		direct	78 Nov 07 j 00:11	21°31'21	
conjunction	71 Feb 03 j 12:07	13°12'01	-12°-50'-23	conjunction	79 Feb 13 j 10:21	23°10'19	-14°-30'-38
minimum elong	71 Feb 03 j 11:56	13°12'00	12°50'24	minimum elong	79 Feb 13 j 10:12	23°10'18	14°30'40
max. Earth dist.	71 Feb 06 j 15:28	13°17'09	42.65500 AU	max. Earth dist.	79 Feb 16 j 09:47	23°15'00	44.40202 AU
retrograde	71 May 17 j 22:33	14°59'04		retrograde	79 May 27 j 17:33	24°53'20	
min. Earth dist.	71 Aug 06 j 08:35	13°55'51	40.82300 AU	min. Earth dist.	79 Aug 16 j 15:57	23°51'26	42.57095 AU
opposition	71 Aug 09 j 10:32	13°51'57	-13°-35'-30	opposition	79 Aug 19 j 13:41	23°47'51	-15°-16'-44
direct	71 Oct 29 j 06:26	12°46'17		direct	79 Nov 08 j 13:29	22°43'50	
conjunction	72 Feb 05 j 00:29	14°28'51	-13°-4'-40	conjunction	80 Feb 14 j 20:56	24°22'17	-14°-41'-5
minimum elong	72 Feb 05 j 00:18	14°28'50	13°04'40	minimum elong	80 Feb 14 j 20:49	24°22'17	14°41'05
max. Earth dist.	72 Feb 08 j 03:22	14°33'56	42.88370 AU	max. Earth dist.	80 Feb 17 j 19:00	24°26'52	44.60348 AU
	72 Feb 24 j 10:00	15°		retrograde	80 May 28 j 06:36	26°04'50	
retrograde	72 May 18 j 08:57	16°15'23		min. Earth dist.	80 Aug 17 j 03:36	25°03'03	42.77252 AU
min. Earth dist.	72 Aug 06 j 21:03	15°12'25	41.05271 AU	opposition	80 Aug 20 j 00:58	24°59'30	-15°-27'-12
opposition	72 Aug 09 j 23:50	15°08'30	-13°-49'-58	direct	80 Nov 08 j 23:00	23°55'39	
	72 Aug 16 j 18:13	15°R					
direct	72 Oct 29 j 21:19	14°03'03		conjunction	81 Feb 15 j 07:35	25°33'37	-14°-51'-4
	73 Jan 07 j 18:29	15°		minimum elong	81 Feb 15 j 07:26	25°33'37	14°51'05
				max. Earth dist.	81 Feb 18 j 06:19	25°38'13	44.80196 AU
conjunction	73 Feb 05 j 12:43	15°45'05	-13°-18'-24	retrograde	81 May 29 j 17:41	27°15'42	
minimum elong	73 Feb 05 j 12:33	15°45'04	13°18'26	min. Earth dist.	81 Aug 18 j 15:42	26°13'59	42.97120 AU
max. Earth dist.	73 Feb 08 j 15:18	15°50'07	43.11047 AU	opposition	81 Aug 21 j 11:48	26°10'31	-15°-37'-12
retrograde	73 May 19 j 21:16	17°31'06		direct	81 Nov 10 j 09:16	25°06'50	
min. Earth dist.	73 Aug 08 j 11:02	16°28'18	41.28038 AU				
opposition	73 Aug 11 j 12:52	16°24'26	-14°-3'-52	conjunction	82 Feb 16 j 17:54	26°44'22	-15°00'-35
direct	73 Oct 31 j 11:03	15°19'15		minimum elong	82 Feb 16 j 17:48	26°44'21	15°00'36
				max. Earth dist.	82 Feb 19 j 15:21	26°48'52	44.99795 AU
conjunction	74 Feb 07 j 00:52	17°00'44	-13°-31'-38	retrograde	82 May 31 j 03:57	28°25'59	
minimum elong	74 Feb 07 j 00:42	17°00'44	13°31'39	min. Earth dist.	82 Aug 20 j 01:42	27°24'29	43.16748 AU
max. Earth dist.	74 Feb 10 j 03:48	17°05'47	43.33497 AU	opposition	82 Aug 22 j 22:26	27°20'59	-15°-46'-43
retrograde	74 May 21 j 10:07	18°46'15		direct	82 Nov 11 j 18:59	26°17'28	
min. Earth dist.	74 Aug 10 j 00:18	17°43'39	41.50522 AU				
opposition	74 Aug 13 j 01:36	17°39'49	-14°-17'-14	conjunction	83 Feb 18 j 03:52	27°54'34	-15°-9'-39
direct	74 Nov 01 j 23:35	16°34'52		minimum elong	83 Feb 18 j 03:45	27°54'34	15°09'40
				max. Earth dist.	83 Feb 21 j 01:24	27°59'03	45.19154 AU
conjunction	75 Feb 08 j 12:35	18°15'51	-13°-44'-22	retrograde	83 Jun 01 j 11:44	29°35'47	
minimum elong	75 Feb 08 j 12:25	18°15'50	13°44'24	min. Earth dist.	83 Aug 21 j 13:38	28°34'22	43.36142 AU
max. Earth dist.	75 Feb 11 j 14:07	18°20'46	43.55637 AU	opposition	83 Aug 24 j 09:01	28°30'56	-15°-55'-46
retrograde	75 May 23 j 00:30	20°00'52		direct	83 Nov 13 j 07:37	27°27'37	
min. Earth dist.	75 Aug 11 j 12:56	18°58'27	41.72677 AU				
opposition	75 Aug 14 j 14:11	18°54'39	-14°-30'-6	conjunction	84 Feb 19 j 13:52	29°04'18	-15°-18'-16
direct	75 Nov 03 j 09:48	17°49'55		minimum elong	84 Feb 19 j 13:47	29°04'18	15°18'18
				max. Earth dist.	84 Feb 22 j 11:11	29°08'46	45.38299 AU
conjunction	76 Feb 10 j 00:23	19°30'23	-13°-56'-37		84 Mar 28 j 21:54	0°K	
minimum elong	76 Feb 10 j 00:13	19°30'23	13°56'38	retrograde	84 Jun 01 j 20:01	0°K45'07	
max. Earth dist.	76 Feb 13 j 02:14	19°35'18	43.77413 AU		84 Aug 08 j 11:12	30°R	
retrograde	76 May 23 j 11:40	21°14'55		min. Earth dist.	84 Aug 21 j 23:41	29°43'53	43.55291 AU
min. Earth dist.	76 Aug 12 j 02:57	20°12'36	41.94430 AU	opposition	84 Aug 24 j 19:11	29°40'28	-16°-4'-21
opposition	76 Aug 15 j 02:31	20°08'54	-14°-42'-28	direct	84 Nov 13 j 19:43	28°37'20	
direct	76 Nov 03 j 22:27	19°04'23			85 Feb 11 j 01:39	0°K	
conjunction	77 Feb 10 j 11:56	20°44'21	-14°-8'-25	conjunction	85 Feb 19 j 23:33	0°K13'38	-15°-26'-27
minimum elong	77 Feb 10 j 11:46	20°44'20	14°08'26	minimum elong	85 Feb 19 j 23:26	0°K13'37	15°26'28
max. Earth dist.	77 Feb 13 j 12:14	20°49'08	43.98779 AU	max. Earth dist.	85 Feb 22 j 19:43	0°K17'59	45.57185 AU
retrograde	77 May 24 j 22:06	22°28'22		retrograde	85 Jun 03 j 07:45	1°K54'04	
min. Earth dist.	77 Aug 13 j 14:52	21°26'14	42.15743 AU	min. Earth dist.	85 Aug 23 j 10:30	0°K52'59	43.74174 AU
opposition	77 Aug 16 j 14:32	21°22'32	-14°-54'-21	opposition	85 Aug 26 j 05:19	0°K49'36	-16°-12'-29
direct	77 Nov 05 j 11:14	20°18'12			85 Oct 12 j 04:28	30°R	
				direct	85 Nov 15 j 04:31	29°46'41	
conjunction	78 Feb 11 j 23:15	21°57'40	-14°-19'-45		85 Dec 18 j 11:45	0°K	
minimum elong	78 Feb 11 j 23:07	21°57'39	14°19'45				
max. Earth dist.	78 Feb 14 j 22:58	22°02'24	44.19692 AU	conjunction	86 Feb 21 j 09:15	1°K22'35	-15°-34'-13
retrograde	78 May 26 j 08:09	23°41'11		minimum elong	86 Feb 21 j 09:10	1°K22'35	15°34'14
min. Earth dist.	78 Aug 15 j 04:14	22°39'08	42.36619 AU	max. Earth dist.	86 Feb 24 j 05:49	1°K26'57	45.75781 AU

retrograde	86 Jun 04 j 18:11	3° ✕ 02'38		direct	94 Nov 25 j 14:38	9° ✕ 51'27	
min. Earth dist.	86 Aug 24 j 21:27	2° ✕ 01'41	43.92720 AU				
opposition	86 Aug 27 j 15:02	1° ✕ 58'23	-16°-20'-11	conjunction	95 Mar 03 j 16:50	11° ✕ 24'06	-16°-26'-55
direct	86 Nov 16 j 13:53	0° ✕ 55'39		minimum elong	95 Mar 03 j 16:49	11° ✕ 24'06	16°26'56
				max. Earth dist.	95 Mar 06 j 05:10	11° ✕ 27'49	47.24725 AU
conjunction	87 Feb 22 j 18:41	2° ✕ 31'11	-15°-41'-34	retrograde	95 Jun 14 j 22:01	13° ✕ 00'49	
minimum elong	87 Feb 22 j 18:36	2° ✕ 31'11	15°41'34	min. Earth dist.	95 Sep 04 j 12:52	12° ✕ 00'40	45.40827 AU
max. Earth dist.	87 Feb 25 j 13:27	2° ✕ 35'25	45.94031 AU	opposition	95 Sep 06 j 22:53	11° ✕ 57'48	-17°-11'-57
retrograde	87 Jun 06 j 05:50	4° ✕ 10'52		direct	95 Nov 26 j 23:40	10° ✕ 56'16	
min. Earth dist.	87 Aug 26 j 07:08	3° ✕ 10'05	44.10894 AU				
opposition	87 Aug 29 j 00:42	3° ✕ 06'48	-16°-27'-28	conjunction	96 Mar 04 j 00:51	12° ✕ 28'35	-16°-30'-54
direct	87 Nov 17 j 20:45	2° ✕ 04'15		minimum elong	96 Mar 04 j 00:49	12° ✕ 28'35	16°30'55
				max. Earth dist.	96 Mar 06 j 13:29	12° ✕ 32'18	47.39601 AU
conjunction	88 Feb 24 j 03:59	3° ✕ 39'26	-15°-48'-31	retrograde	96 Jun 15 j 04:54	14° ✕ 04'59	
minimum elong	88 Feb 24 j 03:55	3° ✕ 39'26	15°48'33	min. Earth dist.	96 Sep 04 j 21:21	13° ✕ 04'56	45.55630 AU
max. Earth dist.	88 Feb 26 j 22:36	3° ✕ 43'39	46.11867 AU	opposition	96 Sep 07 j 06:47	13° ✕ 02'06	-17°-15'-46
retrograde	88 Jun 06 j 14:54	5° ✕ 18'45		direct	96 Nov 27 j 09:19	12° ✕ 00'43	
min. Earth dist.	88 Aug 26 j 18:51	4° ✕ 18'02	44.28621 AU				
opposition	88 Aug 29 j 10:19	4° ✕ 14'52	-16°-34'-22	conjunction	97 Mar 05 j 08:45	13° ✕ 32'43	-16°-34'-32
direct	88 Nov 18 j 05:58	3° ✕ 12'29		minimum elong	97 Mar 05 j 08:45	13° ✕ 32'43	16°34'32
				max. Earth dist.	97 Mar 07 j 19:39	13° ✕ 36'19	47.54212 AU
conjunction	89 Feb 24 j 13:22	4° ✕ 47'18	-15°-55'-7	retrograde	97 Jun 16 j 15:40	15° ✕ 08'49	
minimum elong	89 Feb 24 j 13:18	4° ✕ 47'18	15°55'07	min. Earth dist.	97 Sep 06 j 05:16	14° ✕ 08'54	45.70160 AU
max. Earth dist.	89 Feb 27 j 06:48	4° ✕ 51'25	46.29247 AU	opposition	97 Sep 08 j 14:27	14° ✕ 06'05	-17°-19'-13
retrograde	89 Jun 07 j 20:49	6° ✕ 26'14		direct	97 Nov 28 j 14:31	13° ✕ 04'50	
min. Earth dist.	89 Aug 28 j 04:12	5° ✕ 25'40	44.45857 AU				
opposition	89 Aug 30 j 19:26	5° ✕ 22'30	-16°-40'-53	conjunction	98 Mar 06 j 16:36	14° ✕ 36'34	-16°-37'-47
direct	89 Nov 19 j 18:08	4° ✕ 20'16		minimum elong	98 Mar 06 j 16:35	14° ✕ 36'34	16°37'48
				max. Earth dist.	98 Mar 09 j 03:38	14° ✕ 40'10	47.68523 AU
conjunction	90 Feb 25 j 22:26	5° ✕ 54'42	-16°-1'-20	retrograde	98 Jun 18 j 00:48	16° ✕ 12'23	
minimum elong	90 Feb 25 j 22:22	5° ✕ 54'42	16°01'21	min. Earth dist.	98 Sep 07 j 14:48	15° ✕ 12'31	45.84357 AU
max. Earth dist.	90 Feb 28 j 14:11	5° ✕ 58'42	46.46131 AU	opposition	98 Sep 09 j 22:10	15° ✕ 09'48	-17°-22'-18
retrograde	90 Jun 09 j 05:36	7° ✕ 33'17		direct	98 Nov 29 j 20:48	14° ✕ 08'43	
min. Earth dist.	90 Aug 29 j 14:52	6° ✕ 32'45	44.62612 AU				
opposition	90 Sep 01 j 04:38	6° ✕ 29'40	-16°-47'-1	conjunction	99 Mar 08 j 00:12	15° ✕ 40'11	-16°-40'-42
direct	90 Nov 21 j 04:36	5° ✕ 27'34		minimum elong	99 Mar 08 j 00:13	15° ✕ 40'11	16°40'44
				max. Earth dist.	99 Mar 10 j 10:04	15° ✕ 43'41	47.82491 AU
conjunction	91 Feb 27 j 07:15	7° ✕ 01'37	-16°-7'-12	retrograde	99 Jun 19 j 06:53	17° ✕ 15'42	
minimum elong	91 Feb 27 j 07:12	7° ✕ 01'37	16°07'12	min. Earth dist.	99 Sep 08 j 22:15	16° ✕ 16'00	45.98167 AU
max. Earth dist.	91 Mar 01 j 23:05	7° ✕ 05'37	46.62554 AU	opposition	99 Sep 11 j 05:39	16° ✕ 13'17	-17°-25'-2
retrograde	91 Jun 10 j 14:41	8° ✕ 39'49		direct	99 Dec 01 j 04:41	15° ✕ 12'20	
min. Earth dist.	91 Aug 31 j 00:53	7° ✕ 39'20	44.78910 AU				
opposition	91 Sep 02 j 13:31	7° ✕ 36'19	-16°-52'-47	conjunction	100 Mar 08 j 07:52	16° ✕ 43'33	-16°-43'-18
direct	91 Nov 22 j 14:02	6° ✕ 34'20		minimum elong	100 Mar 08 j 07:51	16° ✕ 43'33	16°43'19
				max. Earth dist.	100 Mar 10 j 16:17	16° ✕ 46'58	47.96033 AU
conjunction	92 Feb 28 j 15:53	8° ✕ 08'00	-16°-12'-41	retrograde	100 Jun 19 j 13:13	18° ✕ 18'49	
minimum elong	92 Feb 28 j 15:49	8° ✕ 08'00	16°12'43	min. Earth dist.	100 Sep 09 j 07:38	17° ✕ 19'09	46.11531 AU
max. Earth dist.	92 Mar 02 j 05:55	8° ✕ 11'52	46.78569 AU	opposition	100 Sep 11 j 13:06	17° ✕ 16'33	-17°-27'-27
retrograde	92 Jun 11 j 01:20	9° ✕ 45'49		direct	100 Dec 01 j 13:44	16° ✕ 15'44	
min. Earth dist.	92 Aug 31 j 09:37	8° ✕ 45'26	44.94839 AU				
opposition	92 Sep 02 j 22:08	8° ✕ 42'26	-16°-58'-10				
direct	92 Nov 22 j 20:46	7° ✕ 40'33					
conjunction	93 Mar 01 j 00:24	9° ✕ 13'52	-16°-17'-49				
minimum elong	93 Mar 01 j 00:22	9° ✕ 13'52	16°17'50				
max. Earth dist.	93 Mar 03 j 14:30	9° ✕ 17'42	46.94234 AU				
retrograde	93 Jun 12 j 08:43	10° ✕ 51'17					
min. Earth dist.	93 Sep 01 j 19:45	9° ✕ 50'56	45.10438 AU				
opposition	93 Sep 04 j 06:37	9° ✕ 48'01	-17°-3'-9				
direct	93 Nov 24 j 05:20	8° ✕ 46'15					
conjunction	94 Mar 02 j 08:44	10° ✕ 19'13	-16°-22'-33				
minimum elong	94 Mar 02 j 08:42	10° ✕ 19'13	16°22'34				
max. Earth dist.	94 Mar 04 j 21:58	10° ✕ 23'00	47.09612 AU				
retrograde	94 Jun 13 j 14:25	11° ✕ 56'16					
min. Earth dist.	94 Sep 03 j 03:34	10° ✕ 56'03	45.25756 AU				
opposition	94 Sep 05 j 14:41	10° ✕ 53'07	-17°-7'-45				

conjunction	100 Mar 08 j 07:52	16° ✕ 43'33	-16°-43'-18	minimum elong	108 Mar 16 j 17:07	24° ✕ 59'57	16°53'09
minimum elong	100 Mar 08 j 07:51	16° ✕ 43'33	16°43'19	max. Earth dist.	108 Mar 18 j 18:16	25° ✕ 02'52	48.88280 AU
max. Earth dist.	100 Mar 10 j 16:17	16° ✕ 46'58	47.96033 AU	retrograde	108 Jun 27 j 22:48	26° ✕ 33'08	
retrograde	100 Jun 19 j 13:13	18° ✕ 18'49		min. Earth dist.	108 Sep 17 j 21:48	25° ✕ 33'54	47.02358 AU
min. Earth dist.	100 Sep 09 j 07:38	17° ✕ 19'09	46.11531 AU	opposition	108 Sep 19 j 19:08	25° ✕ 31'43	-17°-35'-32
opposition	100 Sep 11 j 13:06	17° ✕ 16'33	-17°-27'-27	direct	108 Dec 09 j 20:21	24° ✕ 31'41	
direct	100 Dec 01 j 13:44	16° ✕ 15'44					
conjunction	101 Mar 09 j 15:37	17° ✕ 46'41	-16°-45'-36	conjunction	109 Mar 17 j 23:42	26° ✕ 00'43	-16°-52'-57
minimum elong	101 Mar 09 j 15:39	17° ✕ 46'41	16°45'37	minimum elong	109 Mar 17 j 23:45	26° ✕ 00'43	16°52'59
max. Earth dist.	101 Mar 11 j 23:39	17° ✕ 50'05	48.09107 AU	max. Earth dist.	109 Mar 19 j 23:32	26° ✕ 03'32	48.98290 AU
retrograde	101 Jun 20 j 19:54	19° ✕ 21'42		retrograde	109 Jun 29 j 05:51	27° ✕ 33'40	
min. Earth dist.	101 Sep 10 j 16:00	18° ✕ 22'06	46.24377 AU	min. Earth dist.	109 Sep 19 j 03:47	26° ✕ 34'33	47.12200 AU
opposition	101 Sep 12 j 20:22	18° ✕ 19'33	-17°-29'-33	opposition	109 Sep 21 j 01:17	26° ✕ 32'22	-17°-35'-6
direct	101 Dec 02 j 22:53	17° ✕ 18'52		direct	109 Dec 11 j 00:39	25° ✕ 32'27	
conjunction	102 Mar 10 j 23:03	18° ✕ 49'34	-16°-47'-35	conjunction	110 Mar 19 j 06:12	27° ✕ 01'17	-16°-52'-29
minimum elong	102 Mar 10 j 23:04	18° ✕ 49'34	16°47'35	minimum elong	110 Mar 19 j 06:17	27° ✕ 01'17	16°52'30
max. Earth dist.	102 Mar 13 j 04:43	18° ✕ 52'47	48.21661 AU	max. Earth dist.	110 Mar 21 j 05:00	27° ✕ 04'02	49.07966 AU
retrograde	102 Jun 22 j 05:28	20° ✕ 24'17		retrograde	110 Jun 30 j 10:11	28° ✕ 34'02	
min. Earth dist.	102 Sep 11 j 23:55	19° ✕ 24'47	46.36714 AU	min. Earth dist.	110 Sep 20 j 11:47	27° ✕ 34'56	47.21693 AU
opposition	102 Sep 14 j 03:29	19° ✕ 22'16	-17°-31'-21	opposition	110 Sep 22 j 07:25	27° ✕ 32'51	-17°-34'-22
direct	102 Dec 04 j 04:22	18° ✕ 21'41		direct	110 Dec 12 j 08:19	26° ✕ 33'02	
conjunction	103 Mar 12 j 06:26	19° ✕ 52'07	-16°-49'-17	conjunction	111 Mar 20 j 12:48	28° ✕ 01'42	-16°-51'-42
minimum elong	103 Mar 12 j 06:28	19° ✕ 52'07	16°49'19	minimum elong	111 Mar 20 j 12:52	28° ✕ 01'42	16°51'43
max. Earth dist.	103 Mar 14 j 11:49	19° ✕ 55'19	48.33716 AU	max. Earth dist.	111 Mar 22 j 11:17	28° ✕ 04'26	49.17285 AU
retrograde	103 Jun 23 j 13:04	21° ✕ 26'34		retrograde	111 Jul 01 j 13:34	29° ✕ 34'14	
min. Earth dist.	103 Sep 13 j 08:55	20° ✕ 27'04	46.48561 AU	min. Earth dist.	111 Sep 21 j 18:26	28° ✕ 35'14	47.30779 AU
opposition	103 Sep 15 j 10:32	20° ✕ 24'39	-17°-32'-51	opposition	111 Sep 23 j 13:21	28° ✕ 33'11	-17°-33'-20
direct	103 Dec 05 j 10:40	19° ✕ 24'10		direct	111 Dec 13 j 17:16	27° ✕ 33'28	
conjunction	104 Mar 12 j 13:35	20° ✕ 54'20	-16°-50'-41	conjunction	112 Mar 20 j 19:14	29° ✕ 01'57	-16°-50'-39
minimum elong	104 Mar 12 j 13:37	20° ✕ 54'20	16°50'41	minimum elong	112 Mar 20 j 19:20	29° ✕ 01'57	16°50'40
max. Earth dist.	104 Mar 14 j 17:30	20° ✕ 57'27	48.45330 AU	max. Earth dist.	112 Mar 22 j 15:29	29° ✕ 04'33	49.26165 AU
retrograde	104 Jun 23 j 19:20	22° ✕ 28'30		retrograde	112 May 04 j 09:34	0° ✕	
min. Earth dist.	104 Sep 13 j 15:44	21° ✕ 29'05	46.59985 AU	retrograde	112 Jul 01 j 21:29	0° ✕ 34'18	
opposition	104 Sep 15 j 17:18	21° ✕ 26'41	-17°-34'-2	min. Earth dist.	112 Aug 30 j 18:24	30° ✕	
direct	104 Dec 05 j 17:06	20° ✕ 26'16		opposition	112 Sep 22 j 01:38	29° ✕ 35'21	47.39399 AU
conjunction	105 Mar 13 j 20:39	21° ✕ 56'12	-16°-51'-46	direct	112 Sep 23 j 19:20	29° ✕ 33'21	-17°-32'-1
minimum elong	105 Mar 13 j 20:41	21° ✕ 56'12	16°51'47	direct	112 Dec 13 j 22:46	28° ✕ 33'43	
max. Earth dist.	105 Mar 15 j 23:29	21° ✕ 59'14	48.56537 AU	conjunction	113 Mar 20 j 15:08	0° ✕	
retrograde	105 Jun 25 j 00:41	23° ✕ 30'06		minimum elong	113 Mar 22 j 01:53	0° ✕ 02'02	-16°-49'-21
min. Earth dist.	105 Sep 15 j 00:10	22° ✕ 30'41	46.71042 AU	minimum elong	113 Mar 22 j 01:58	0° ✕ 02'02	16°49'21
opposition	105 Sep 16 j 23:55	22° ✕ 28'22	-17°-34'-54	max. Earth dist.	113 Mar 23 j 21:34	0° ✕ 04'35	49.34539 AU
direct	105 Dec 07 j 00:48	21° ✕ 28'03		retrograde	113 Jul 03 j 04:36	1° ✕ 34'11	
conjunction	106 Mar 15 j 03:40	22° ✕ 57'44	-16°-52'-32	min. Earth dist.	113 Sep 23 j 09:27	0° ✕ 35'13	47.47476 AU
minimum elong	106 Mar 15 j 03:43	22° ✕ 57'44	16°52'33	opposition	113 Sep 25 j 01:08	0° ✕ 33'19	-17°-30'-27
max. Earth dist.	106 Mar 17 j 06:24	23° ✕ 00'45	48.67415 AU	direct	113 Oct 25 j 19:09	30° ✕	
retrograde	106 Jun 26 j 04:57	24° ✕ 31'23		direct	113 Dec 15 j 04:48	29° ✕ 33'46	
min. Earth dist.	106 Sep 16 j 06:58	23° ✕ 32'03	46.81768 AU	direct	114 Feb 02 j 11:59	0° ✕	
opposition	106 Sep 18 j 06:23	23° ✕ 29'45	-17°-35'-27	conjunction	114 Mar 23 j 08:22	1° ✕ 01'54	-16°-47'-48
direct	106 Dec 08 j 10:16	22° ✕ 29'31		minimum elong	114 Mar 23 j 08:28	1° ✕ 01'54	16°47'49
conjunction	107 Mar 16 j 10:15	23° ✕ 58'58	-16°-53'00	max. Earth dist.	114 Mar 25 j 02:03	1° ✕ 04'19	49.42380 AU
minimum elong	107 Mar 16 j 10:17	23° ✕ 58'58	16°53'01	retrograde	114 Jul 04 j 12:13	2° ✕ 33'50	
max. Earth dist.	107 Mar 18 j 11:13	24° ✕ 01'53	48.77989 AU	min. Earth dist.	114 Sep 24 j 15:40	1° ✕ 34'55	47.55011 AU
retrograde	107 Jun 27 j 13:57	25° ✕ 32'23		opposition	114 Sep 26 j 06:53	1° ✕ 33'02	-17°-28'-38
min. Earth dist.	107 Sep 17 j 14:00	24° ✕ 33'07	46.92212 AU	direct	114 Dec 16 j 08:36	0° ✕ 33'32	
opposition	107 Sep 19 j 12:53	24° ✕ 30'51	-17°-35'-39	conjunction	115 Mar 24 j 14:32	2° ✕ 01'29	-16°-45'-59
direct	107 Dec 09 j 15:47	23° ✕ 30'43		minimum elong	115 Mar 24 j 14:37	2° ✕ 01'29	16°46'00
conjunction	108 Mar 16 j 17:02	24° ✕ 59'57	-16°-53'-8	max. Earth dist.	115 Mar 26 j 06:48	2° ✕ 03'50	49.49677 AU
				retrograde	115 Jul 05 j 17:49	3° ✕ 33'13	
				min. Earth dist.	115 Sep 25 j 23:39	2° ✕ 34'14	47.62027 AU

opposition	115 Sep 27 j 12:41	2°V32'28	-17°-26'-34	conjunction	124 Apr 01 j 19:41	10°V47'45	-16°-17'-41
direct	115 Dec 17 j 14:06	1°V33'01		minimum elong	124 Apr 01 j 19:48	10°V47'46	16°17'41
				max. Earth dist.	124 Apr 03 j 02:45	10°V49'32	49.98348 AU
conjunction	116 Mar 24 j 20:51	3°V00'46	-16°-43'-56	retrograde	124 Jul 13 j 20:25	12°V18'07	
minimum elong	116 Mar 24 j 20:57	3°V00'47	16°43'57	min. Earth dist.	124 Oct 04 j 06:20	11°V19'24	48.08543 AU
max. Earth dist.	116 Mar 26 j 12:33	3°V03'05	49.56494 AU	opposition	124 Oct 05 j 11:04	11°V18'02	-16°-55'-27
retrograde	116 Jul 05 j 20:32	4°V32'17		direct	124 Dec 25 j 14:51	10°V19'07	
min. Earth dist.	116 Sep 26 j 05:38	3°V33'20	47.68573 AU				
opposition	116 Sep 27 j 18:04	3°V31'36	-17°-24'-14	conjunction	125 Apr 03 j 01:31	11°V45'48	-16°-13'-13
direct	116 Dec 17 j 22:44	2°V32'11		minimum elong	125 Apr 03 j 01:40	11°V45'49	16°13'15
				max. Earth dist.	125 Apr 04 j 07:04	11°V47'29	50.01890 AU
conjunction	117 Mar 26 j 02:56	3°V59'46	-16°-41'-37	retrograde	125 Jul 15 j 02:50	13°V16'03	
minimum elong	117 Mar 26 j 03:03	3°V59'46	16°41'37	opposition	125 Oct 06 j 16:04	12°V16'02	-16°-50'-41
max. Earth dist.	117 Mar 27 j 16:29	4°V01'56	49.62876 AU	min. Earth dist.	125 Oct 05 j 13:41	12°V17'17	48.11754 AU
retrograde	117 Jul 07 j 02:39	5°V31'05		direct	125 Dec 26 j 18:21	11°V17'10	
opposition	117 Sep 28 j 23:32	4°V30'27	-17°-21'-37				
min. Earth dist.	117 Sep 27 j 12:11	4°V32'08	47.74725 AU	conjunction	126 Apr 04 j 07:16	12°V43'46	-16°-8'-33
direct	117 Dec 19 j 04:54	3°V31'04		minimum elong	126 Apr 04 j 07:25	12°V43'46	16°08'33
				max. Earth dist.	126 Apr 05 j 11:54	12°V45'24	50.04915 AU
conjunction	118 Mar 27 j 08:57	4°V58'29	-16°-39'-1	retrograde	126 Jul 16 j 05:02	14°V13'53	
minimum elong	118 Mar 27 j 09:03	4°V58'29	16°39'02	opposition	126 Oct 07 j 20:50	13°V13'56	-16°-45'-40
max. Earth dist.	118 Mar 28 j 22:34	5°V00'39	49.68882 AU	min. Earth dist.	126 Oct 06 j 19:02	13°V15'09	48.14422 AU
retrograde	118 Jul 08 j 09:21	6°V29'37		direct	126 Dec 28 j 01:56	12°V15'05	
min. Earth dist.	118 Sep 28 j 18:58	5°V30'39	47.80515 AU				
opposition	118 Sep 30 j 04:50	5°V29'02	-17°-18'-44	conjunction	127 Apr 05 j 12:54	13°V41'35	-16°-3'-38
direct	118 Dec 20 j 10:01	4°V29'43		minimum elong	127 Apr 05 j 13:03	13°V41'35	16°03'40
				max. Earth dist.	127 Apr 06 j 15:07	13°V43'05	50.07414 AU
conjunction	119 Mar 28 j 14:50	5°V56'58	-16°-36'-9	retrograde	127 Jul 17 j 09:16	15°V11'35	
minimum elong	119 Mar 28 j 14:58	5°V56'59	16°36'09	min. Earth dist.	127 Oct 08 j 01:26	14°V12'48	48.16592 AU
max. Earth dist.	119 Mar 30 j 02:57	5°V59'03	49.74576 AU	opposition	127 Oct 09 j 01:38	14°V11'40	-16°-40'-26
retrograde	119 Jul 09 j 16:49	7°V27'56		direct	127 Dec 29 j 08:33	13°V12'50	
min. Earth dist.	119 Sep 29 j 23:58	6°V29'03	47.86005 AU				
opposition	119 Oct 01 j 10:00	6°V27'26	-17°-15'-33	conjunction	128 Apr 05 j 18:34	14°V39'13	-15°-58'-30
direct	119 Dec 21 j 12:47	5°V28'09		minimum elong	128 Apr 05 j 18:44	14°V39'14	15°58'31
				max. Earth dist.	128 Apr 06 j 20:29	14°V40'42	50.09429 AU
conjunction	120 Mar 28 j 20:37	6°V55'17	-16°-33'00	retrograde	128 Jul 17 j 14:50	16°V09'07	
minimum elong	120 Mar 28 j 20:43	6°V55'17	16°33'01	min. Earth dist.	128 Oct 08 j 07:43	15°V10'16	48.18289 AU
max. Earth dist.	120 Mar 30 j 07:47	6°V57'19	49.79967 AU	opposition	128 Oct 09 j 06:20	15°V09'12	-16°-34'-57
retrograde	120 Jul 09 j 21:07	8°V26'06		direct	128 Dec 29 j 14:35	14°V10'22	
min. Earth dist.	120 Sep 30 j 07:03	7°V27'12	47.91198 AU				
opposition	120 Oct 01 j 15:16	7°V25'40	-17°-12'-5	conjunction	129 Apr 07 j 00:09	15°V36'40	-15°-53'-8
direct	120 Dec 21 j 18:45	6°V26'27		minimum elong	129 Apr 07 j 00:18	15°V36'41	15°53'09
				max. Earth dist.	129 Apr 08 j 00:12	15°V38'02	50.11016 AU
conjunction	121 Mar 30 j 02:32	7°V53'28	-16°-29'-34	retrograde	129 Jul 18 j 22:51	17°V06'25	
minimum elong	121 Mar 30 j 02:41	7°V53'29	16°29'35	opposition	129 Oct 10 j 10:46	16°V06'32	-16°-29'-13
max. Earth dist.	121 Mar 31 j 13:31	7°V55'29	49.85075 AU	min. Earth dist.	129 Oct 09 j 12:25	16°V07'35	48.19589 AU
retrograde	121 Jul 10 j 23:24	9°V24'09		direct	129 Dec 30 j 16:39	15°V07'42	
opposition	121 Oct 02 j 20:10	8°V23'48	-17°-8'-20				
min. Earth dist.	121 Oct 01 j 12:14	8°V25'19	47.96083 AU	conjunction	130 Apr 08 j 05:36	16°V33'55	-15°-47'-30
direct	121 Dec 23 j 02:32	7°V24'40		minimum elong	130 Apr 08 j 05:46	16°V33'56	15°47'30
				max. Earth dist.	130 Apr 09 j 04:35	16°V35'13	50.12223 AU
conjunction	122 Mar 31 j 08:13	8°V51'35	-16°-25'-52	retrograde	130 Jul 20 j 03:37	18°V03'33	
minimum elong	122 Mar 31 j 08:20	8°V51'36	16°25'53	opposition	130 Oct 11 j 15:25	17°V03'41	-16°-23'-14
max. Earth dist.	122 Apr 01 j 17:10	8°V53'29	49.89869 AU	min. Earth dist.	130 Oct 10 j 18:58	17°V04'39	48.20541 AU
retrograde	122 Jul 12 j 06:06	10°V22'10		direct	130 Dec 31 j 20:44	16°V04'51	
min. Earth dist.	122 Oct 02 j 18:23	9°V23'22	48.00647 AU				
opposition	122 Oct 04 j 01:15	9°V21'54	-17°-4'-18	conjunction	131 Apr 09 j 10:58	17°V30'59	-15°-41'-37
direct	122 Dec 24 j 07:31	8°V22'51		minimum elong	131 Apr 09 j 11:07	17°V31'00	15°41'38
				max. Earth dist.	131 Apr 10 j 09:43	17°V32'17	50.13118 AU
conjunction	123 Apr 01 j 13:53	9°V49'41	-16°-21'-54	retrograde	131 Jul 21 j 05:28	19°V00'31	
minimum elong	123 Apr 01 j 14:02	9°V49'41	16°21'55	opposition	131 Oct 12 j 19:53	18°V00'39	-16°-16'-59
max. Earth dist.	123 Apr 02 j 22:48	9°V51'34	49.94313 AU	min. Earth dist.	131 Oct 11 j 23:35	18°V01'37	48.21181 AU
retrograde	123 Jul 13 j 12:22	11°V20'09		direct	132 Jan 02 j 03:35	17°V01'50	
min. Earth dist.	123 Oct 04 j 01:00	10°V21'22	48.04817 AU				
opposition	123 Oct 05 j 06:16	10°V19'59	-17°00'00	conjunction	132 Apr 09 j 16:20	18°V27'55	-15°-35'-29
direct	123 Dec 25 j 12:55	9°V21'00		minimum elong	132 Apr 09 j 16:31	18°V27'56	15°35'30
				max. Earth dist.	132 Apr 10 j 13:06	18°V29'06	50.13716 AU

retrograde	132 Jul	21 j 09:59	19°♊57'21		direct	141 Jan	09 j 18:09	25°♊34'01	
min. Earth dist.	132 Oct	12 j 05:06	18°♊58'26	48.21540 AU					
opposition	132 Oct	13 j 00:19	18°♊57'32	-16°-10'-27	conjunction	141 Apr	18 j 17:39	27°♊00'02	-14°-29'-25
direct	133 Jan	02 j 09:09	17°♊58'43		minimum elong	141 Apr	18 j 17:51	27°♊00'03	14°29'26
					max. Earth dist.	141 Apr	19 j 03:36	27°♊00'36	50.01734 AU
conjunction	133 Apr	10 j 21:51	19°♊24'45	-15°-29'-5	retrograde	141 Jul	30 j 09:32	28°♊29'08	
minimum elong	133 Apr	10 j 22:01	19°♊24'46	15°29'06	opposition	141 Oct	21 j 15:50	27°♊29'35	-15°00'-46
max. Earth dist.	133 Apr	11 j 18:35	19°♊25'56	50.14029 AU	min. Earth dist.	141 Oct	21 j 07:31	27°♊29'58	48.06508 AU
retrograde	133 Jul	22 j 14:30	20°♊54'08		direct	142 Jan	11 j 01:02	26°♊30'50	
min. Earth dist.	133 Oct	13 j 10:50	19°♊55'12	48.21596 AU					
opposition	133 Oct	14 j 04:48	19°♊54'21	-16°-3'-40	conjunction	142 Apr	19 j 22:54	27°♊56'53	-14°-20'-57
direct	134 Jan	03 j 15:02	18°♊55'34		minimum elong	142 Apr	19 j 23:04	27°♊56'53	14°20'58
					max. Earth dist.	142 Apr	20 j 06:36	27°♊57'19	49.98085 AU
conjunction	134 Apr	12 j 03:06	20°♊21'34	-15°-22'-26	retrograde	142 Jul	31 j 13:08	29°♊25'58	
minimum elong	134 Apr	12 j 03:18	20°♊21'34	15°22'27	opposition	142 Oct	22 j 20:10	28°♊26'24	-14°-51'-52
max. Earth dist.	134 Apr	12 j 22:22	20°♊22'39	50.14049 AU	min. Earth dist.	142 Oct	22 j 13:14	28°♊26'43	48.02556 AU
retrograde	134 Jul	23 j 21:55	21°♊50'53		direct	143 Jan	12 j 07:06	27°♊27'37	
opposition	134 Oct	15 j 09:11	20°♊51'10	-15°-56'-37					
min. Earth dist.	134 Oct	14 j 15:25	20°♊52'00	48.21339 AU	conjunction	143 Apr	21 j 04:23	28°♊53'41	-14°-12'-15
direct	135 Jan	04 j 17:17	19°♊52'24		minimum elong	143 Apr	21 j 04:35	28°♊53'42	14°12'15
					max. Earth dist.	143 Apr	21 j 12:04	28°♊54'07	49.94088 AU
conjunction	135 Apr	13 j 08:29	21°♊18'24	-15°-15'-32		143 Jun	15 j 04:11	0°♋	
minimum elong	135 Apr	13 j 08:39	21°♊18'24	15°15'33	retrograde	143 Aug	01 j 17:03	0°♋22'46	
max. Earth dist.	135 Apr	14 j 02:31	21°♊19'25	50.13720 AU		143 Sep	18 j 21:53	30°♋	
retrograde	135 Jul	25 j 04:49	22°♊47'41		opposition	143 Oct	24 j 00:25	29°♊23'12	-14°-42'-42
opposition	135 Oct	16 j 13:39	21°♊48'00	-15°-49'-19	min. Earth dist.	143 Oct	23 j 18:39	29°♊23'28	47.98265 AU
min. Earth dist.	135 Oct	15 j 22:00	21°♊48'45	48.20709 AU	direct	144 Jan	13 j 13:16	28°♊24'24	
direct	136 Jan	05 j 19:53	20°♊49'17						
					conjunction	144 Apr	21 j 09:48	29°♊50'30	-14°-3'-17
conjunction	136 Apr	13 j 14:02	22°♊15'17	-15°-8'-23	minimum elong	144 Apr	21 j 09:59	29°♊50'30	14°03'18
minimum elong	136 Apr	13 j 14:13	22°♊15'18	15°08'25	max. Earth dist.	144 Apr	21 j 15:51	29°♊50'50	49.89785 AU
max. Earth dist.	136 Apr	14 j 07:25	22°♊16'16	50.12996 AU		144 Apr	28 j 10:01	0°♋	
retrograde	136 Jul	25 j 08:10	23°♊44'32		retrograde	144 Aug	02 j 00:32	1°♋19'35	
opposition	136 Oct	16 j 18:00	22°♊44'55	-15°-41'-47	opposition	144 Oct	24 j 04:40	0°♋20'01	-14°-33'-18
min. Earth dist.	136 Oct	16 j 02:55	22°♊45'37	48.19628 AU	min. Earth dist.	144 Oct	23 j 23:09	0°♋20'17	47.93674 AU
direct	137 Jan	06 j 01:39	21°♊46'13			144 Nov	11 j 04:48	30°♋	
					direct	145 Jan	13 j 15:43	29°♊21'12	
conjunction	137 Apr	14 j 19:33	23°♊12'14	-15°-1'-1		145 Mar	16 j 18:14	0°♋	
minimum elong	137 Apr	14 j 19:43	23°♊12'14	15°01'01					
max. Earth dist.	137 Apr	15 j 10:22	23°♊13'04	50.11781 AU	conjunction	145 Apr	22 j 15:16	0°♋47'20	-13°-54'-5
retrograde	137 Jul	26 j 12:47	24°♊41'28		minimum elong	145 Apr	22 j 15:28	0°♋47'21	13°54'06
opposition	137 Oct	17 j 22:24	23°♊41'52	-15°-34'-1	max. Earth dist.	145 Apr	22 j 20:08	0°♋47'37	49.85168 AU
min. Earth dist.	137 Oct	17 j 09:08	23°♊42'30	48.18040 AU	retrograde	145 Aug	03 j 08:01	2°♋16'27	
direct	138 Jan	07 j 07:04	22°♊43'12		opposition	145 Oct	25 j 08:59	1°♋16'53	-14°-23'-37
					min. Earth dist.	145 Oct	25 j 05:18	1°♋17'03	47.88773 AU
conjunction	138 Apr	16 j 01:10	24°♊09'13	-14°-53'-27	direct	146 Jan	14 j 17:39	0°♋18'03	
minimum elong	138 Apr	16 j 01:21	24°♊09'13	14°53'28					
max. Earth dist.	138 Apr	16 j 15:23	24°♊10'01	50.10038 AU	conjunction	146 Apr	23 j 20:48	1°♋44'16	-13°-44'-38
retrograde	138 Jul	27 j 17:28	25°♊38'25		minimum elong	146 Apr	23 j 20:58	1°♋44'16	13°44'39
opposition	138 Oct	19 j 02:53	24°♊38'51	-15°-26'-2	max. Earth dist.	146 Apr	24 j 01:17	1°♋44'31	49.80258 AU
min. Earth dist.	138 Oct	18 j 15:16	24°♊39'24	48.15902 AU	retrograde	146 Aug	04 j 12:14	3°♋13'23	
direct	139 Jan	08 j 13:08	23°♊40'11		opposition	146 Oct	26 j 13:15	2°♋13'50	-14°-13'-42
					min. Earth dist.	146 Oct	26 j 09:43	2°♋14'00	47.83551 AU
conjunction	139 Apr	17 j 06:33	25°♊06'11	-14°-45'-39	direct	147 Jan	15 j 22:06	1°♋14'59	
minimum elong	139 Apr	17 j 06:43	25°♊06'12	14°45'40					
max. Earth dist.	139 Apr	17 j 18:37	25°♊06'52	50.07766 AU	conjunction	147 Apr	25 j 02:08	2°♋41'17	-13°-34'-56
retrograde	139 Jul	29 j 01:38	26°♊35'22		minimum elong	147 Apr	25 j 02:21	2°♋41'18	13°34'57
opposition	139 Oct	20 j 07:17	25°♊35'49	-15°-17'-51	max. Earth dist.	147 Apr	25 j 04:32	2°♋41'25	49.75003 AU
min. Earth dist.	139 Oct	19 j 20:15	25°♊36'20	48.13242 AU	retrograde	147 Aug	05 j 16:41	4°♋10'28	
direct	140 Jan	09 j 15:00	24°♊37'07		opposition	147 Oct	27 j 17:39	3°♋10'55	-14°-3'-31
					min. Earth dist.	147 Oct	27 j 15:48	3°♋11'01	47.77965 AU
conjunction	140 Apr	17 j 12:05	26°♊03'08	-14°-37'-39	direct	148 Jan	17 j 03:26	2°♋12'03	
minimum elong	140 Apr	17 j 12:16	26°♊03'09	14°37'40					
max. Earth dist.	140 Apr	17 j 22:40	26°♊03'44	50.04974 AU	conjunction	148 Apr	25 j 07:55	3°♋38'26	-13°-25'-1
retrograde	140 Jul	29 j 07:22	27°♊32'17		minimum elong	148 Apr	25 j 08:06	3°♋38'27	13°25'01
opposition	140 Oct	20 j 11:36	26°♊32'44	-15°-9'-25	max. Earth dist.	148 Apr	25 j 09:51	3°♋38'33	49.69339 AU
min. Earth dist.	140 Oct	20 j 02:57	26°♊33'08	48.10091 AU	retrograde	148 Aug	05 j 19:27	5°♋07'40	

opposition	148 Oct 27 j 21:57	4°♄08'08	-13°-53'-7	conjunction	157 May 04 j 12:12	12°♄15'08	-11°-45'-33
min. Earth dist.	148 Oct 27 j 21:37	4°♄08'09	47.71926 AU	minimum elong	157 May 04 j 12:23	12°♄15'09	11°45'34
direct	149 Jan 17 j 10:58	3°♄09'14		max. Earth dist.	157 May 04 j 01:08	12°♄14'30	48.97309 AU
				retrograde	157 Aug 14 j 22:15	13°♄44'57	
conjunction	149 Apr 26 j 13:40	4°♄35'42	-13°-14'-51	opposition	157 Nov 05 j 14:21	12°♄45'00	-12°-8'-57
minimum elong	149 Apr 26 j 13:52	4°♄35'43	13°14'53	min. Earth dist.	157 Nov 06 j 00:31	12°♄44'31	46.96728 AU
max. Earth dist.	149 Apr 26 j 13:28	4°♄35'42	49.63206 AU	direct	158 Jan 26 j 03:11	11°♄45'29	
retrograde	149 Aug 07 j 03:17	6°♄05'00					
opposition	149 Oct 29 j 02:21	5°♄05'27	-13°-42'-29	conjunction	158 May 05 j 18:07	13°♄12'57	-11°-33'-17
min. Earth dist.	149 Oct 29 j 02:47	5°♄05'26	47.65388 AU	minimum elong	158 May 05 j 18:20	13°♄12'58	11°33'18
direct	150 Jan 18 j 13:47	4°♄06'31		max. Earth dist.	158 May 05 j 07:02	13°♄12'19	48.87557 AU
				retrograde	158 Aug 16 j 01:04	14°♄42'55	
conjunction	150 Apr 27 j 19:20	5°♄33'04	-13°-4'-29	opposition	158 Nov 06 j 19:03	13°♄42'57	-11°-56'-6
minimum elong	150 Apr 27 j 19:31	5°♄33'05	13°04'30	min. Earth dist.	158 Nov 07 j 06:06	13°♄42'25	46.86675 AU
max. Earth dist.	150 Apr 27 j 17:28	5°♄32'58	49.56535 AU	direct	159 Jan 27 j 10:44	12°♄43'22	
retrograde	150 Aug 08 j 10:42	7°♄02'24		max. Earth dist.	159 May 06 j 11:26	14°♄10'18	48.77514 AU
opposition	150 Oct 30 j 06:57	6°♄02'49	-13°-31'-37				
min. Earth dist.	150 Oct 30 j 09:47	6°♄02'41	47.58306 AU	conjunction	159 May 07 j 00:12	14°♄11'02	-11°-20'-45
direct	151 Jan 19 j 16:10	5°♄03'50		minimum elong	159 May 07 j 00:23	14°♄11'03	11°20'47
					159 Jun 13 j 15:08	15°♄	
conjunction	151 Apr 29 j 01:12	6°♄30'28	-12°-53'-54	retrograde	159 Aug 17 j 08:54	15°♄41'09	
minimum elong	151 Apr 29 j 01:25	6°♄30'28	12°53'56		159 Oct 22 j 07:22	15°♄	
max. Earth dist.	151 Apr 28 j 22:25	6°♄30'18	49.49339 AU	opposition	159 Nov 07 j 23:39	14°♄41'10	-11°-43'00
retrograde	151 Aug 09 j 14:35	7°♄59'50		min. Earth dist.	159 Nov 08 j 11:17	14°♄40'37	46.76306 AU
opposition	151 Oct 31 j 11:18	7°♄00'12	-13°-20'-33	direct	160 Jan 28 j 13:54	13°♄41'32	
min. Earth dist.	151 Oct 31 j 14:41	7°♄00'03	47.50696 AU		160 Apr 30 j 09:40	15°♄	
direct	152 Jan 20 j 22:10	6°♄01'08					
				conjunction	160 May 07 j 06:30	15°♄09'25	-11°-8'00
conjunction	152 Apr 29 j 06:59	7°♄27'51	-12°-43'-6	minimum elong	160 May 07 j 06:42	15°♄09'26	11°08'01
minimum elong	152 Apr 29 j 07:11	7°♄27'52	12°43'07	max. Earth dist.	160 May 06 j 16:22	15°♄08'37	48.67099 AU
max. Earth dist.	152 Apr 29 j 01:35	7°♄27'33	49.41631 AU	retrograde	160 Aug 17 j 18:00	16°♄39'42	
retrograde	152 Aug 09 j 18:40	8°♄57'16		opposition	160 Nov 08 j 04:33	15°♄39'42	-11°-29'-38
opposition	152 Oct 31 j 15:49	7°♄57'35	-13°-9'-14	min. Earth dist.	160 Nov 08 j 18:27	15°♄39'02	46.65532 AU
min. Earth dist.	152 Oct 31 j 20:58	7°♄57'20	47.42606 AU		160 Dec 15 j 22:03	15°♄	
direct	153 Jan 21 j 04:02	6°♄58'26		direct	161 Jan 28 j 15:31	14°♄40'00	
					161 Mar 13 j 04:14	15°♄	
conjunction	153 Apr 30 j 12:53	8°♄25'14	-12°-32'-5				
minimum elong	153 Apr 30 j 13:04	8°♄25'15	12°32'06	conjunction	161 May 08 j 12:57	16°♄08'06	-10°-55'00
max. Earth dist.	153 Apr 30 j 07:08	8°♄24'55	49.33458 AU	minimum elong	161 May 08 j 13:08	16°♄08'07	10°55'00
retrograde	153 Aug 10 j 21:46	9°♄54'42		max. Earth dist.	161 May 07 j 21:55	16°♄07'15	48.56253 AU
opposition	153 Nov 01 j 20:13	8°♄54'57	-12°-57'-42	retrograde	161 Aug 18 j 23:30	17°♄38'33	
min. Earth dist.	153 Nov 02 j 02:43	8°♄54'38	47.34075 AU	opposition	161 Nov 09 j 09:21	16°♄38'30	-11°-16'-2
direct	154 Jan 22 j 11:07	7°♄55'43		min. Earth dist.	161 Nov 09 j 23:42	16°♄37'49	46.54287 AU
				direct	162 Jan 29 j 21:06	15°♄38'44	
conjunction	154 May 01 j 18:37	9°♄22'37	-12°-20'-49				
minimum elong	154 May 01 j 18:50	9°♄22'37	12°20'49	conjunction	162 May 09 j 19:22	17°♄07'04	-10°-41'-46
max. Earth dist.	154 May 01 j 11:08	9°♄22'11	49.24897 AU	minimum elong	162 May 09 j 19:34	17°♄07'04	10°41'47
retrograde	154 Aug 12 j 04:19	10°♄52'08		max. Earth dist.	162 May 09 j 01:42	17°♄06'03	48.44911 AU
opposition	154 Nov 03 j 00:39	9°♄52'20	-12°-45'-54	retrograde	162 Aug 20 j 04:54	18°♄37'40	
min. Earth dist.	154 Nov 03 j 07:31	9°♄52'00	47.25191 AU	opposition	162 Nov 10 j 14:26	17°♄37'34	-11°-2'-12
direct	155 Jan 23 j 14:48	8°♄53'01		min. Earth dist.	162 Nov 11 j 06:45	17°♄36'47	46.42544 AU
				direct	163 Jan 31 j 03:09	16°♄37'42	
conjunction	155 May 03 j 00:20	10°♄20'01	-12°-9'-19	max. Earth dist.	163 May 10 j 07:46	18°♄05'11	48.33060 AU
minimum elong	155 May 03 j 00:31	10°♄20'02	12°09'19				
max. Earth dist.	155 May 02 j 15:38	10°♄19'31	49.15988 AU	conjunction	163 May 11 j 01:58	18°♄06'14	-10°-28'-18
retrograde	155 Aug 13 j 11:28	11°♄49'37		minimum elong	163 May 11 j 02:10	18°♄06'15	10°28'18
opposition	155 Nov 04 j 05:16	10°♄49'46	-12°-33'-51	retrograde	163 Aug 21 j 08:07	19°♄37'00	
min. Earth dist.	155 Nov 04 j 13:58	10°♄49'21	47.15981 AU	opposition	163 Nov 11 j 19:34	18°♄36'49	-10°-48'-7
direct	156 Jan 24 j 17:52	9°♄50'22		min. Earth dist.	163 Nov 12 j 13:15	18°♄35'58	46.30281 AU
				direct	164 Feb 01 j 11:35	17°♄36'51	
conjunction	156 May 03 j 06:18	11°♄17'31	-11°-57'-33				
minimum elong	156 May 03 j 06:31	11°♄17'31	11°57'34	conjunction	164 May 11 j 08:38	19°♄05'35	-10°-14'-36
max. Earth dist.	156 May 02 j 21:18	11°♄17'00	49.06788 AU	minimum elong	164 May 11 j 08:50	19°♄05'35	10°14'38
retrograde	156 Aug 13 j 16:42	12°♄47'12		max. Earth dist.	164 May 10 j 12:13	19°♄04'24	48.20717 AU
opposition	156 Nov 04 j 09:40	11°♄47'18	-12°-21'-32	retrograde	164 Aug 21 j 14:43	20°♄36'31	
min. Earth dist.	156 Nov 04 j 18:23	11°♄46'53	47.06486 AU	opposition	164 Nov 12 j 00:33	19°♄36'14	-10°-33'-48
direct	157 Jan 24 j 22:21	10°♄47'49		min. Earth dist.	164 Nov 12 j 19:06	19°♄35'21	46.17553 AU

direct	165 Feb 01 j 16:38	18°♄36'09		conjunction	173 May 21 j 00:41	28°♄08'43	-7°-59'-59
				minimum elong	173 May 21 j 00:52	28°♄08'44	8°00'00
conjunction	165 May 12 j 15:24	20°♄05'04	-10°00'-41	retrograde	173 Aug 31 j 04:42	29°♄41'39	
minimum elong	165 May 12 j 15:36	20°♄05'05	10°00'41	opposition	173 Nov 21 j 02:51	28°♄40'31	-8°-12'-49
max. Earth dist.	165 May 11 j 17:31	20°♄03'49	48.07913 AU	min. Earth dist.	173 Nov 22 j 07:27	28°♄39'07	44.87981 AU
retrograde	165 Aug 22 j 22:35	21°♄36'10		direct	174 Feb 10 j 19:26	27°♄39'16	
opposition	165 Nov 13 j 05:50	20°♄35'48	-10°-19'-13	max. Earth dist.	174 May 20 j 23:32	29°♄08'49	46.78111 AU
min. Earth dist.	165 Nov 14 j 02:24	20°♄34'48	46.04398 AU				
direct	166 Feb 02 j 20:33	19°♄35'34		conjunction	174 May 22 j 08:24	29°♄10'46	-7°-43'-45
				minimum elong	174 May 22 j 08:34	29°♄10'47	7°43'45
conjunction	166 May 13 j 22:03	21°♄04'43	-9°-46'-30			0°♄	
minimum elong	166 May 13 j 22:14	21°♄04'43	9°46'31	retrograde	174 Jun 27 j 18:39	0°♄	
max. Earth dist.	166 May 12 j 23:42	21°♄03'25	47.94726 AU		174 Sep 01 j 12:24	0°♄44'00	
retrograde	166 Aug 24 j 06:36	22°♄35'58			174 Nov 07 j 14:38	30°♄	
opposition	166 Nov 14 j 11:02	21°♄35'29	-10°-4'-23	opposition	174 Nov 22 j 09:08	29°♄42'46	-7°-55'-48
min. Earth dist.	166 Nov 15 j 07:45	21°♄34'29	45.90882 AU	min. Earth dist.	174 Nov 23 j 14:47	29°♄41'18	44.71736 AU
direct	167 Feb 04 j 00:31	20°♄35'07		direct	175 Feb 12 j 01:39	28°♄41'21	
max. Earth dist.	167 May 14 j 04:19	22°♄03'04	47.81195 AU		175 May 14 j 09:10	0°♄	
				max. Earth dist.	175 May 22 j 06:07	0°♄11'10	46.61738 AU
conjunction	167 May 15 j 04:50	22°♄04'30	-9°-32'-4	conjunction	175 May 23 j 16:33	0°♄13'12	-7°-27'-15
minimum elong	167 May 15 j 05:02	22°♄04'30	9°32'05	minimum elong	175 May 23 j 16:43	0°♄13'13	7°27'17
retrograde	167 Aug 25 j 13:42	23°♄35'56		retrograde	175 Sep 02 j 20:17	1°♄46'45	
opposition	167 Nov 15 j 16:21	22°♄35'20	-9°-49'-16	opposition	175 Nov 23 j 15:32	0°♄45'23	-7°-38'-31
min. Earth dist.	167 Nov 16 j 14:43	22°♄34'15	45.77061 AU	min. Earth dist.	175 Nov 24 j 23:24	0°♄43'48	44.54980 AU
direct	168 Feb 05 j 05:30	21°♄34'49			176 Jan 05 j 15:14	30°♄	
max. Earth dist.	168 May 14 j 11:15	23°♄03'01	47.67372 AU	direct	176 Feb 13 j 07:36	29°♄43'48	
					176 Mar 22 j 16:22	0°♄	
conjunction	168 May 15 j 11:54	23°♄04'27	-9°-17'-23	max. Earth dist.	176 May 22 j 13:23	1°♄13'54	46.44881 AU
minimum elong	168 May 15 j 12:05	23°♄04'28	9°17'24				
retrograde	168 Aug 25 j 16:31	24°♄36'05		conjunction	176 May 24 j 00:53	1°♄16'01	-7°-10'-30
opposition	168 Nov 15 j 21:49	23°♄35'23	-9°-33'-53	minimum elong	176 May 24 j 01:02	1°♄16'01	7°10'31
min. Earth dist.	168 Nov 16 j 20:53	23°♄34'16	45.62952 AU	retrograde	176 Sep 03 j 06:08	2°♄49'51	
direct	169 Feb 05 j 14:16	22°♄34'44		opposition	176 Nov 23 j 22:00	1°♄48'21	-7°-20'-59
				min. Earth dist.	176 Nov 25 j 06:18	1°♄46'45	44.37751 AU
conjunction	169 May 16 j 18:52	24°♄04'37	-9°-2'-26	direct	177 Feb 13 j 12:42	0°♄46'35	
minimum elong	169 May 16 j 19:03	24°♄04'38	9°02'27	max. Earth dist.	177 May 23 j 19:10	2°♄16'54	46.27558 AU
max. Earth dist.	169 May 15 j 16:36	24°♄03'05	47.53288 AU				
retrograde	169 Aug 26 j 22:40	25°♄36'29		conjunction	177 May 25 j 09:08	2°♄19'10	-6°-53'-31
opposition	169 Nov 17 j 03:18	24°♄35'41	-9°-18'-14	minimum elong	177 May 25 j 09:17	2°♄19'11	6°53'32
min. Earth dist.	169 Nov 18 j 02:48	24°♄34'32	45.48597 AU	retrograde	177 Sep 04 j 16:01	3°♄53'19	
direct	170 Feb 06 j 20:27	23°♄34'55		opposition	177 Nov 25 j 04:40	2°♄51'40	-7°-3'-10
max. Earth dist.	170 May 16 j 22:45	25°♄03'29	47.38940 AU	min. Earth dist.	177 Nov 26 j 15:03	2°♄49'57	44.20101 AU
				direct	178 Feb 14 j 18:01	1°♄49'42	
conjunction	170 May 18 j 02:02	25°♄05'05	-8°-47'-13	max. Earth dist.	178 May 25 j 03:27	3°♄20'23	46.09843 AU
minimum elong	170 May 18 j 02:12	25°♄05'05	8°47'14				
retrograde	170 Aug 28 j 07:09	26°♄37'11		conjunction	178 May 26 j 17:40	3°♄22'40	-6°-36'-15
opposition	170 Nov 18 j 09:03	25°♄36'18	-9°-2'-17	minimum elong	178 May 26 j 17:49	3°♄22'41	6°36'16
min. Earth dist.	170 Nov 19 j 10:20	25°♄35'04	45.33974 AU	retrograde	178 Sep 05 j 21:24	4°♄57'08	
direct	171 Feb 08 j 00:20	24°♄35'25		opposition	178 Nov 26 j 11:24	3°♄55'19	-6°-45'-4
max. Earth dist.	171 May 18 j 05:31	26°♄04'15	47.24325 AU	min. Earth dist.	178 Nov 27 j 22:24	3°♄53'35	44.02084 AU
				direct	179 Feb 16 j 03:29	2°♄53'10	
conjunction	171 May 19 j 09:19	26°♄05'53	-8°-31'-44	max. Earth dist.	179 May 26 j 10:01	4°♄24'07	45.91796 AU
minimum elong	171 May 19 j 09:31	26°♄05'54	8°31'45				
retrograde	171 Aug 29 j 15:06	27°♄38'15		conjunction	179 May 28 j 02:09	4°♄26'32	-6°-18'-44
opposition	171 Nov 19 j 14:48	26°♄37'18	-8°-46'-4	minimum elong	179 May 28 j 02:17	4°♄26'32	6°18'45
min. Earth dist.	171 Nov 20 j 16:11	26°♄36'03	45.19045 AU	retrograde	179 Sep 07 j 04:01	6°♄01'20	
direct	172 Feb 09 j 05:12	25°♄36'17		opposition	179 Nov 27 j 18:18	4°♄59'21	-6°-26'-41
max. Earth dist.	172 May 18 j 10:43	27°♄05'19	47.09356 AU	min. Earth dist.	179 Nov 29 j 06:10	4°♄57'33	43.83770 AU
				direct	180 Feb 17 j 12:03	3°♄57'00	
conjunction	172 May 19 j 16:50	27°♄07'05	-8°-15'-59	max. Earth dist.	180 May 26 j 18:00	5°♄28'17	45.73449 AU
minimum elong	172 May 19 j 17:00	27°♄07'06	8°16'00				
retrograde	172 Aug 29 j 23:35	28°♄39'44		conjunction	180 May 28 j 11:01	5°♄30'46	-6°00'-56
opposition	172 Nov 19 j 20:41	27°♄38'41	-8°-29'-34	minimum elong	180 May 28 j 11:10	5°♄30'47	6°00'56
min. Earth dist.	172 Nov 21 j 00:08	27°♄37'21	45.03742 AU	retrograde	180 Sep 07 j 12:01	7°♄05'56	
direct	173 Feb 09 j 10:37	26°♄37'34		opposition	180 Nov 28 j 01:23	6°♄03'47	-6°-8'00
max. Earth dist.	173 May 19 j 18:10	28°♄06'55	46.93970 AU	min. Earth dist.	180 Nov 29 j 14:51	6°♄01'54	43.65184 AU
				direct	181 Feb 17 j 18:51	5°♄01'14	

max. Earth dist.	181 May 28 j 02:18	6°II32'54	45.54870 AU	minimum elong	189 Jun 08 j 04:02	15°II32'40	3°08'27
				retrograde	189 Sep 18 j 06:42	17°II11'46	
conjunction	181 May 29 j 19:58	6°II35'26	-5°-42'-52	opposition	189 Dec 08 j 02:33	16°II08'01	-3°-6'-45
minimum elong	181 May 29 j 20:06	6°II35'26	5°42'53	min. Earth dist.	189 Dec 10 j 01:44	16°II05'35	41.84440 AU
retrograde	181 Sep 08 j 22:06	8°II10'58		direct	190 Feb 27 j 18:01	15°II03'27	
opposition	181 Nov 29 j 08:39	7°II08'41	-5°-49'-2	max. Earth dist.	190 Jun 07 j 09:24	16°II38'54	43.73377 AU
min. Earth dist.	181 Nov 30 j 21:55	7°II06'48	43.46379 AU				
direct	182 Feb 19 j 00:05	6°II05'56		conjunction	190 Jun 09 j 14:57	16°II42'18	-2°-47'-56
max. Earth dist.	182 May 29 j 09:26	7°II37'56	45.36062 AU	minimum elong	190 Jun 09 j 15:02	16°II42'18	2°47'57
				retrograde	190 Sep 19 j 15:10	18°II21'53	
conjunction	182 May 31 j 04:54	7°II40'35	-5°-24'-31	opposition	190 Dec 09 j 11:52	17°II17'54	-2°-45'-10
minimum elong	182 May 31 j 05:02	7°II40'35	5°24'32	min. Earth dist.	190 Dec 11 j 12:25	17°II15'22	41.62525 AU
retrograde	182 Sep 10 j 09:19	9°II16'31		direct	191 Mar 01 j 05:24	16°II13'03	
opposition	182 Nov 30 j 16:13	8°II14'05	-5°-29'-46	max. Earth dist.	191 Jun 08 j 19:33	17°II48'59	43.51403 AU
min. Earth dist.	182 Dec 02 j 07:13	8°II12'06	43.27355 AU				
direct	183 Feb 20 j 06:01	7°II11'09		conjunction	191 Jun 11 j 02:16	17°II52'28	-2°-27'-9
max. Earth dist.	183 May 30 j 18:58	8°II43'37	45.17022 AU	minimum elong	191 Jun 11 j 02:20	17°II52'28	2°27'09
				retrograde	191 Sep 21 j 01:54	19°II32'34	
conjunction	183 Jun 01 j 14:22	8°II46'16	-5°-5'-53	opposition	191 Dec 10 j 21:11	18°II28'21	-2°-23'-16
minimum elong	183 Jun 01 j 14:29	8°II46'17	5°05'55	min. Earth dist.	191 Dec 12 j 21:53	18°II25'48	41.40377 AU
retrograde	183 Sep 11 j 17:56	10°II22'37		direct	192 Mar 01 j 14:28	17°II23'12	
opposition	183 Dec 01 j 23:47	9°II20'02	-5°-10'-12	max. Earth dist.	192 Jun 09 j 05:36	18°II59'38	43.29194 AU
min. Earth dist.	183 Dec 03 j 15:19	9°II18'02	43.08073 AU				
direct	184 Feb 21 j 15:30	8°II16'55		conjunction	192 Jun 11 j 13:54	19°II03'14	-2°-6'-5
max. Earth dist.	184 May 31 j 02:23	9°II49'45	44.97701 AU	minimum elong	192 Jun 11 j 13:57	19°II03'14	2°06'06
				retrograde	192 Sep 21 j 14:14	20°II43'53	
conjunction	184 Jun 01 j 23:59	9°II52'33	-4°-46'-59	opposition	192 Dec 11 j 07:03	19°II39'26	-2°-1'-5
minimum elong	184 Jun 02 j 00:06	9°II52'34	4°47'00	min. Earth dist.	192 Dec 13 j 09:29	19°II36'47	41.18036 AU
retrograde	184 Sep 12 j 04:02	11°II29'21		direct	193 Mar 02 j 22:25	18°II34'00	
opposition	184 Dec 02 j 07:39	10°II26'36	-4°-50'-21	max. Earth dist.	193 Jun 10 j 17:36	20°II11'04	43.06818 AU
min. Earth dist.	184 Dec 04 j 00:22	10°II24'32	42.88489 AU				
direct	185 Feb 21 j 23:31	9°II23'17		conjunction	193 Jun 13 j 01:42	20°II14'40	-1°-44'-45
max. Earth dist.	185 Jun 01 j 11:19	10°II56'34	44.78015 AU	minimum elong	193 Jun 13 j 01:45	20°II14'40	1°44'45
				retrograde	193 Sep 23 j 03:17	21°II55'53	
conjunction	185 Jun 03 j 09:52	10°II59'26	-4°-27'-49	opposition	193 Dec 12 j 17:05	20°II51'12	-1°-38'-36
minimum elong	185 Jun 03 j 09:59	10°II59'27	4°27'49	min. Earth dist.	193 Dec 14 j 19:21	20°II48'33	40.95546 AU
retrograde	185 Sep 13 j 10:47	12°II36'41		direct	194 Mar 04 j 08:04	19°II45'30	
opposition	185 Dec 03 j 15:50	11°II33'47	-4°-30'-12	max. Earth dist.	194 Jun 12 j 03:40	21°II23'06	42.84304 AU
min. Earth dist.	185 Dec 05 j 10:20	11°II31'37	42.68513 AU				
direct	186 Feb 23 j 09:09	10°II30'15		conjunction	194 Jun 14 j 13:45	21°II26'51	-1°-23'-8
max. Earth dist.	186 Jun 02 j 20:14	12°II03'57	44.57932 AU	minimum elong	194 Jun 14 j 13:48	21°II26'51	1°23'10
				retrograde	194 Sep 24 j 17:19	23°II08'41	
conjunction	186 Jun 04 j 20:01	12°II06'55	-4°-8'-22	opposition	194 Dec 14 j 03:23	22°II03'46	-1°-15'-49
minimum elong	186 Jun 04 j 20:07	12°II06'56	4°08'24	min. Earth dist.	194 Dec 16 j 06:53	22°II01'03	40.72938 AU
retrograde	186 Sep 14 j 21:21	13°II44'38		direct	195 Mar 05 j 17:15	20°II57'48	
opposition	186 Dec 05 j 00:06	12°II41'33	-4°-9'-47	max. Earth dist.	195 Jun 13 j 16:09	22°II36'05	42.61646 AU
min. Earth dist.	186 Dec 06 j 19:05	12°II39'21	42.48122 AU				
direct	187 Feb 24 j 16:19	11°II37'47		conjunction	195 Jun 16 j 02:20	22°II39'52	-1°-1'-16
max. Earth dist.	187 Jun 04 j 04:12	13°II11'51	44.37401 AU	minimum elong	195 Jun 16 j 02:22	22°II39'52	1°01'16
				retrograde	195 Sep 26 j 03:38	24°II22'21	
conjunction	187 Jun 06 j 06:23	13°II14'58	-3°-48'-40	opposition	195 Dec 15 j 14:06	23°II17'14	0°-52'-44
minimum elong	187 Jun 06 j 06:29	13°II14'59	3°48'40	min. Earth dist.	195 Dec 17 j 18:26	23°II14'27	40.50165 AU
retrograde	187 Sep 16 j 10:14	14°II53'09		direct	196 Mar 06 j 05:42	22°II11'00	
opposition	187 Dec 06 j 08:47	13°II49'51	-3°-49'-3	max. Earth dist.	196 Jun 14 j 03:40	23°II49'55	42.38808 AU
min. Earth dist.	187 Dec 08 j 06:04	13°II47'32	42.27291 AU				
direct	188 Feb 25 j 21:44	12°II45'50		conjunction	196 Jun 16 j 15:10	23°II53'49	0°-39'-7
max. Earth dist.	188 Jun 04 j 14:29	14°II20'24	44.16437 AU	minimum elong	196 Jun 16 j 15:11	23°II53'49	0°39'08
				retrograde	196 Sep 26 j 15:41	25°II36'57	
conjunction	188 Jun 06 j 17:09	14°II23'34	-3°-28'-41	opposition	196 Dec 16 j 00:58	24°II31'38	0°-29'-23
minimum elong	188 Jun 06 j 17:15	14°II23'34	3°28'43	min. Earth dist.	196 Dec 18 j 05:50	24°II28'49	40.27195 AU
retrograde	188 Sep 16 j 19:52	16°II02'11		direct	197 Mar 07 j 16:46	23°II25'09	
opposition	188 Dec 06 j 17:31	14°II58'41	-3°-28'-3	max. Earth dist.	197 Jun 15 j 15:30	25°II04'43	42.15711 AU
min. Earth dist.	188 Dec 08 j 15:18	14°II56'19	42.06040 AU				
direct	189 Feb 26 j 08:05	13°II54'23		conjunction	197 Jun 18 j 04:29	25°II08'44	0°-16'-43
max. Earth dist.	189 Jun 05 j 22:57	15°II29'20	43.95080 AU	minimum elong	197 Jun 18 j 04:30	25°II08'44	0°16'44
				retrograde	197 Sep 28 j 05:04	26°II52'34	
conjunction	189 Jun 08 j 03:57	15°II32'40	-3°-8'-27	opposition	197 Dec 17 j 12:28	25°II47'02	0°-5'-43

min. Earth dist.	197 Dec 19 j 19:21	25°II44'05	40.03950 AU	conjunction	205 Jun 29 j 04:12	5°♄41'51	2°51'31
direct	198 Mar 09 j 01:24	24°II40'16		minimum elong	205 Jun 29 j 04:07	5°♄41'51	2°51'31
asc. node	198 Mar 15 j 19:57	24°II40'49		retrograde	205 Oct 09 j 06:26	7°♄31'41	
max. Earth dist.	198 Jun 17 j 04:31	26°II20'32	41.92317 AU	opposition	205 Dec 27 j 20:50	6°♄23'45	3°13'18
				min. Earth dist.	205 Dec 30 j 10:30	6°♄20'18	38.08064 AU
conjunction	198 Jun 19 j 18:01	26°II24'37	0°06'01	direct	206 Mar 19 j 07:16	5°♄14'07	
minimum elong	198 Jun 19 j 18:02	26°II24'37	0°06'01	max. Earth dist.	206 Jun 27 j 22:02	7°♄00'23	39.95295 AU
behind sun begin	198 Jun 19 j 11:49	26°II24'14					
behind sun end	198 Jun 20 j 00:14	26°II25'00		conjunction	206 Jun 30 j 20:47	7°♄05'20	3°16'04
retrograde	198 Sep 29 j 19:31	28°II09'10		minimum elong	206 Jun 30 j 20:40	7°♄05'20	3°16'04
opposition	198 Dec 19 j 00:12	27°II03'23	0°18'12	retrograde	206 Oct 11 j 01:49	8°♄56'01	
min. Earth dist.	198 Dec 21 j 07:15	27°II00'25	39.80383 AU	opposition	206 Dec 29 j 11:46	7°♄47'46	3°39'17
direct	199 Mar 10 j 12:17	25°II56'19		min. Earth dist.	207 Jan 01 j 02:13	7°♄44'15	37.83012 AU
max. Earth dist.	199 Jun 18 j 16:05	27°II37'12	41.68572 AU	direct	207 Mar 20 j 21:55	6°♄37'46	
				max. Earth dist.	207 Jun 29 j 15:25	8°♄24'59	39.70131 AU
conjunction	199 Jun 21 j 08:05	27°II41'28	0°28'54				
minimum elong	199 Jun 21 j 08:04	27°II41'28	0°28'54	conjunction	207 Jul 02 j 14:11	8°♄29'59	3°40'48
retrograde	199 Oct 01 j 12:24	29°II26'43		minimum elong	207 Jul 02 j 14:04	8°♄29'59	3°40'47
opposition	199 Dec 20 j 12:16	28°II20'41	0°42'25	retrograde	207 Oct 12 j 18:50	10°♄21'34	
min. Earth dist.	199 Dec 22 j 21:19	28°II17'35	39.56479 AU	opposition	207 Dec 31 j 03:08	9°♄13'01	4°05'30
direct	200 Mar 10 j 22:57	27°II13'17		min. Earth dist.	208 Jan 02 j 18:34	9°♄09'25	37.57925 AU
max. Earth dist.	200 Jun 19 j 06:21	28°II54'56	41.44481 AU	direct	208 Mar 21 j 14:12	8°♄02'38	
				max. Earth dist.	208 Jun 30 j 08:20	9°♄50'47	39.44926 AU
conjunction	200 Jun 21 j 22:40	28°II59'15	0°52'04				
minimum elong	200 Jun 21 j 22:39	28°II59'15	0°52'04	conjunction	208 Jul 03 j 07:59	9°♄55'53	4°05'43
	200 Jul 31 j 22:14	0°♄		minimum elong	208 Jul 03 j 07:51	9°♄55'53	4°05'43
retrograde	200 Oct 02 j 02:56	0°♄45'13		retrograde	208 Oct 13 j 12:18	11°♄48'25	
	200 Dec 04 j 14:21	30°RII		opposition	208 Dec 31 j 19:00	10°♄39'33	4°31'55
opposition	200 Dec 21 j 00:49	29°II38'53	1°06'54	min. Earth dist.	209 Jan 03 j 10:30	10°♄35'56	37.32786 AU
min. Earth dist.	200 Dec 23 j 10:43	29°II35'44	39.32242 AU	direct	209 Mar 23 j 05:51	9°♄28'49	
direct	201 Mar 12 j 13:35	28°II31'09		max. Earth dist.	209 Jul 02 j 01:16	11°♄17'53	39.19607 AU
	201 Jun 12 j 10:48	0°♄					
max. Earth dist.	201 Jun 20 j 19:00	0°♄13'28	41.20080 AU	conjunction	209 Jul 05 j 02:14	11°♄23'08	4°30'48
				minimum elong	209 Jul 05 j 02:05	11°♄23'07	4°30'48
conjunction	201 Jun 23 j 13:16	0°♄17'56	1°15'29	retrograde	209 Oct 15 j 05:53	13°♄16'38	
minimum elong	201 Jun 23 j 13:14	0°♄17'56	1°15'29	opposition	210 Jan 02 j 11:33	12°♄07'28	4°58'32
retrograde	201 Oct 03 j 18:08	2°♄04'38		min. Earth dist.	210 Jan 05 j 04:48	12°♄03'43	37.07526 AU
opposition	201 Dec 22 j 13:36	0°♄58'00	1°31'40	direct	210 Mar 24 j 20:18	10°♄56'21	
min. Earth dist.	201 Dec 25 j 00:20	0°♄54'47	39.07736 AU	max. Earth dist.	210 Jul 03 j 20:08	12°♄46'28	38.94145 AU
	202 Feb 13 j 09:04	30°RII					
direct	202 Mar 14 j 02:35	29°II49'54		conjunction	210 Jul 06 j 21:11	12°♄51'45	4°56'03
	202 Apr 11 j 15:08	0°♄		minimum elong	210 Jul 06 j 21:01	12°♄51'45	4°56'03
max. Earth dist.	202 Jun 22 j 09:11	1°♄32'57	40.95408 AU	retrograde	210 Oct 17 j 01:16	14°♄46'15	
				opposition	211 Jan 04 j 04:26	13°♄36'45	5°25'19
conjunction	202 Jun 25 j 04:27	1°♄37'32	1°39'09	min. Earth dist.	211 Jan 06 j 21:42	13°♄32'59	36.82105 AU
minimum elong	202 Jun 25 j 04:24	1°♄37'31	1°39'09	direct	211 Mar 26 j 11:43	12°♄25'14	
retrograde	202 Oct 05 j 05:50	3°♄24'58		max. Earth dist.	211 Jul 05 j 13:25	14°♄16'16	38.68490 AU
opposition	202 Dec 24 j 02:47	2°♄18'01	1°56'42				
min. Earth dist.	202 Dec 26 j 15:07	2°♄14'41	38.83000 AU	conjunction	211 Jul 08 j 16:41	14°♄21'46	5°21'27
direct	203 Mar 15 j 16:44	1°♄09'33		minimum elong	211 Jul 08 j 16:30	14°♄21'45	5°21'26
max. Earth dist.	203 Jun 24 j 00:13	2°♄53'22	40.70545 AU	retrograde	211 Oct 18 j 22:40	16°♄17'16	
				opposition	212 Jan 05 j 22:03	15°♄07'25	5°52'17
conjunction	203 Jun 26 j 19:57	2°♄58'01	2°03'03	min. Earth dist.	212 Jan 08 j 17:03	15°♄03'32	36.56506 AU
minimum elong	203 Jun 26 j 19:54	2°♄58'01	2°03'03	direct	212 Mar 27 j 02:58	13°♄55'29	
retrograde	203 Oct 06 j 20:41	4°♄46'13		max. Earth dist.	212 Jul 06 j 09:30	15°♄47'37	38.42643 AU
opposition	203 Dec 25 j 16:20	3°♄38'57	2°21'59				
min. Earth dist.	203 Dec 28 j 04:33	3°♄35'36	38.58105 AU	conjunction	212 Jul 09 j 12:50	15°♄53'10	5°46'58
direct	204 Mar 16 j 05:24	2°♄30'05		minimum elong	212 Jul 09 j 12:38	15°♄53'09	5°46'59
max. Earth dist.	204 Jun 24 j 14:20	4°♄14'38	40.45523 AU	retrograde	212 Oct 19 j 19:20	17°♄49'42	
				opposition	213 Jan 06 j 16:12	16°♄39'29	6°19'23
conjunction	204 Jun 27 j 11:51	4°♄19'26	2°27'11	min. Earth dist.	213 Jan 09 j 11:45	16°♄35'32	36.30731 AU
minimum elong	204 Jun 27 j 11:46	4°♄19'26	2°27'12	direct	213 Mar 28 j 22:38	15°♄27'07	
retrograde	204 Oct 07 j 13:42	6°♄08'26		max. Earth dist.	213 Jul 08 j 04:22	17°♄20'14	38.16647 AU
opposition	204 Dec 26 j 06:21	5°♄00'50	2°47'31				
min. Earth dist.	204 Dec 28 j 20:15	4°♄57'23	38.33109 AU	conjunction	213 Jul 11 j 09:21	17°♄25'57	6°12'37
direct	205 Mar 17 j 15:56	3°♄51'35		minimum elong	213 Jul 11 j 09:09	17°♄25'57	6°12'36
max. Earth dist.	205 Jun 26 j 07:04	5°♄37'03	40.20426 AU	retrograde	213 Oct 21 j 18:09	19°♄23'31	

opposition	214 Jan 08 j 10:50	18° $\overline{55}$ 12'56	6°46'38	opposition	222 Jan 21 j 14:48	1° $\overline{02}$ 35'36	10°25'18
min. Earth dist.	214 Jan 11 j 06:55	18° $\overline{50}$ 08'56	36.04852 AU	min. Earth dist.	222 Jan 24 j 13:49	1° $\overline{02}$ 31'12	34.00832 AU
direct	214 Mar 30 j 17:42	17° $\overline{50}$ 00'07		direct	222 Apr 12 j 15:00	0° $\overline{02}$ 19'07	
max. Earth dist.	214 Jul 10 j 01:00	18° $\overline{55}$ 54'20	37.90539 AU	max. Earth dist.	222 Jul 23 j 22:28	2° $\overline{02}$ 23'21	35.85252 AU
conjunction	214 Jul 13 j 06:28	19° $\overline{50}$ 00'09	6°38'20	conjunction	222 Jul 27 j 05:24	2° $\overline{02}$ 29'45	10°03'33
minimum elong	214 Jul 13 j 06:14	19° $\overline{50}$ 00'08	6°38'21	minimum elong	222 Jul 27 j 05:04	2° $\overline{02}$ 29'43	10°03'34
retrograde	214 Oct 23 j 14:06	20° $\overline{50}$ 58'47		retrograde	222 Nov 06 j 18:34	4° $\overline{02}$ 38'01	
opposition	215 Jan 10 j 06:09	19° $\overline{50}$ 47'48	7°13'58	opposition	223 Jan 23 j 15:30	3° $\overline{02}$ 23'53	10°52'11
min. Earth dist.	215 Jan 13 j 03:34	19° $\overline{50}$ 43'41	35.78900 AU	min. Earth dist.	223 Jan 26 j 13:55	3° $\overline{02}$ 19'30	33.76130 AU
direct	215 Apr 01 j 13:03	18° $\overline{50}$ 34'31		direct	223 Apr 14 j 15:20	2° $\overline{02}$ 06'57	
max. Earth dist.	215 Jul 11 j 22:23	20° $\overline{50}$ 29'51	37.64400 AU	max. Earth dist.	223 Jul 26 j 00:34	4° $\overline{02}$ 12'29	35.60323 AU
conjunction	215 Jul 15 j 04:10	20° $\overline{50}$ 35'44	7°04'08	conjunction	223 Jul 29 j 08:37	4° $\overline{02}$ 19'02	10°28'37
minimum elong	215 Jul 15 j 03:56	20° $\overline{50}$ 35'43	7°04'07	minimum elong	223 Jul 29 j 08:17	4° $\overline{02}$ 19'00	10°28'37
retrograde	215 Oct 25 j 10:38	22° $\overline{50}$ 35'28		retrograde	223 Nov 08 j 21:54	6° $\overline{02}$ 28'38	
opposition	216 Jan 12 j 01:49	21° $\overline{50}$ 24'05	7°41'23	opposition	224 Jan 25 j 17:04	5° $\overline{02}$ 14'05	11°18'51
min. Earth dist.	216 Jan 14 j 22:53	21° $\overline{50}$ 19'58	35.52964 AU	min. Earth dist.	224 Jan 28 j 16:51	5° $\overline{02}$ 09'35	33.51550 AU
direct	216 Apr 02 j 08:34	20° $\overline{50}$ 10'19		direct	224 Apr 15 j 13:22	3° $\overline{02}$ 56'40	
max. Earth dist.	216 Jul 12 j 19:27	22° $\overline{50}$ 06'45	37.38284 AU	max. Earth dist.	224 Jul 27 j 05:17	6° $\overline{02}$ 03'39	35.35522 AU
conjunction	216 Jul 16 j 02:28	22° $\overline{50}$ 12'47	7°29'57	conjunction	224 Jul 30 j 12:35	6° $\overline{02}$ 10'12	10°53'26
minimum elong	216 Jul 16 j 02:12	22° $\overline{50}$ 12'46	7°29'57	minimum elong	224 Jul 30 j 12:13	6° $\overline{02}$ 10'10	10°53'25
retrograde	216 Oct 26 j 08:42	24° $\overline{50}$ 13'38		retrograde	224 Nov 10 j 01:23	8° $\overline{02}$ 21'08	
opposition	217 Jan 12 j 22:22	23° $\overline{50}$ 01'51	8°08'50	opposition	225 Jan 26 j 19:28	7° $\overline{02}$ 06'10	11°45'15
min. Earth dist.	217 Jan 15 j 20:44	22° $\overline{50}$ 57'37	35.27115 AU	min. Earth dist.	225 Jan 29 j 18:35	7° $\overline{02}$ 01'40	33.27105 AU
direct	217 Apr 04 j 01:41	21° $\overline{50}$ 47'37		direct	225 Apr 17 j 15:44	5° $\overline{02}$ 48'16	
max. Earth dist.	217 Jul 14 j 19:04	23° $\overline{50}$ 45'19	37.12287 AU	max. Earth dist.	225 Jul 29 j 08:33	7° $\overline{02}$ 56'32	35.10867 AU
conjunction	217 Jul 18 j 01:10	23° $\overline{50}$ 51'20	7°55'46	conjunction	225 Aug 01 j 17:03	8° $\overline{02}$ 03'15	11°17'56
minimum elong	217 Jul 18 j 00:54	23° $\overline{50}$ 51'19	7°55'46	minimum elong	225 Aug 01 j 16:41	8° $\overline{02}$ 03'14	11°17'56
retrograde	217 Oct 28 j 07:35	25° $\overline{50}$ 53'21		retrograde	225 Nov 12 j 07:43	10° $\overline{02}$ 15'32	
opposition	218 Jan 14 j 19:28	24° $\overline{50}$ 41'09	8°36'16	opposition	226 Jan 28 j 22:38	9° $\overline{02}$ 00'07	12°11'19
min. Earth dist.	218 Jan 17 j 17:03	24° $\overline{50}$ 36'56	35.01421 AU	min. Earth dist.	226 Jan 31 j 22:23	8° $\overline{02}$ 55'33	33.02846 AU
direct	218 Apr 05 j 21:34	23° $\overline{50}$ 26'27		direct	226 Apr 19 j 16:35	7° $\overline{02}$ 41'42	
max. Earth dist.	218 Jul 16 j 17:16	25° $\overline{50}$ 25'18	36.86468 AU	max. Earth dist.	226 Jul 31 j 15:06	9° $\overline{02}$ 51'30	34.86407 AU
conjunction	218 Jul 20 j 00:33	25° $\overline{50}$ 31'28	8°21'33	conjunction	226 Aug 03 j 22:31	9° $\overline{02}$ 58'11	11°42'05
minimum elong	218 Jul 20 j 00:16	25° $\overline{50}$ 31'27	8°21'32	minimum elong	226 Aug 03 j 22:08	9° $\overline{02}$ 58'09	11°42'05
retrograde	218 Oct 30 j 09:33	27° $\overline{50}$ 34'41		retrograde	226 Nov 14 j 13:01	12° $\overline{02}$ 11'48	
opposition	219 Jan 16 j 17:08	26° $\overline{50}$ 22'04	9°03'41	opposition	227 Jan 31 j 02:30	10° $\overline{02}$ 55'56	12°37'00
min. Earth dist.	219 Jan 19 j 15:23	26° $\overline{50}$ 17'48	34.75950 AU	min. Earth dist.	227 Feb 03 j 02:11	10° $\overline{02}$ 51'21	32.78810 AU
direct	219 Apr 07 j 17:29	25° $\overline{50}$ 06'55		direct	227 Apr 21 j 20:20	9° $\overline{02}$ 37'01	
max. Earth dist.	219 Jul 18 j 18:23	27° $\overline{50}$ 07'08	36.60864 AU	max. Earth dist.	227 Aug 02 j 20:38	11° $\overline{02}$ 48'10	34.62215 AU
conjunction	219 Jul 22 j 00:49	27° $\overline{50}$ 13'18	8°47'15	conjunction	227 Aug 06 j 04:37	11° $\overline{02}$ 54'58	12°05'49
minimum elong	219 Jul 22 j 00:32	27° $\overline{50}$ 13'16	8°47'14	minimum elong	227 Aug 06 j 04:15	11° $\overline{02}$ 54'56	12°05'49
retrograde	219 Nov 01 j 11:12	29° $\overline{50}$ 17'43		retrograde	227 Nov 16 j 21:34	14° $\overline{02}$ 09'57	
opposition	220 Jan 18 j 15:39	28° $\overline{50}$ 04'44	9°31'01	opposition	228 Feb 02 j 07:12	12° $\overline{02}$ 53'37	13°02'14
min. Earth dist.	220 Jan 21 j 13:56	28° $\overline{50}$ 00'26	34.50700 AU	min. Earth dist.	228 Feb 05 j 06:26	12° $\overline{02}$ 49'02	32.55089 AU
direct	220 Apr 08 j 17:05	26° $\overline{50}$ 49'08		direct	228 Apr 23 j 00:27	11° $\overline{02}$ 34'11	
max. Earth dist.	220 Jul 19 j 18:23	28° $\overline{50}$ 50'37	36.35485 AU	max. Earth dist.	228 Aug 04 j 04:19	13° $\overline{02}$ 46'51	34.38352 AU
conjunction	220 Jul 23 j 01:32	28° $\overline{50}$ 56'54	9°12'50	conjunction	228 Aug 07 j 11:28	13° $\overline{02}$ 53'39	12°29'04
minimum elong	220 Jul 23 j 01:13	28° $\overline{50}$ 56'52	9°12'50	minimum elong	228 Aug 07 j 11:04	13° $\overline{02}$ 53'37	12°29'04
	220 Aug 26 j 15:32	0° $\overline{02}$			228 Sep 09 j 23:05	15° $\overline{02}$	
retrograde	220 Nov 02 j 14:37	1° $\overline{02}$ 02'36		retrograde	228 Nov 18 j 04:57	16° $\overline{02}$ 09'59	
	221 Jan 12 j 07:04	30° $\overline{02}$			229 Jan 30 j 04:15	15° $\overline{02}$	
opposition	221 Jan 19 j 14:47	29° $\overline{50}$ 49'13	9°58'14	opposition	229 Feb 03 j 12:53	14° $\overline{02}$ 53'13	13°26'55
min. Earth dist.	221 Jan 22 j 12:49	29° $\overline{50}$ 44'55	34.25677 AU	min. Earth dist.	229 Feb 06 j 12:20	14° $\overline{02}$ 48'35	32.31747 AU
direct	221 Apr 10 j 15:47	28° $\overline{50}$ 33'10		direct	229 Apr 25 j 06:18	13° $\overline{02}$ 33'17	
	221 Jul 02 j 16:30	0° $\overline{02}$			229 Jul 14 j 00:48	15° $\overline{02}$	
max. Earth dist.	221 Jul 21 j 20:04	0° $\overline{02}$ 36'02	36.10287 AU	max. Earth dist.	229 Aug 06 j 12:36	15° $\overline{02}$ 47'27	34.14933 AU
conjunction	221 Jul 25 j 03:10	0° $\overline{02}$ 42'22	9°38'17	conjunction	229 Aug 09 j 18:58	15° $\overline{02}$ 54'15	12°51'45
minimum elong	221 Jul 25 j 02:51	0° $\overline{02}$ 42'21	9°38'17	minimum elong	229 Aug 09 j 18:35	15° $\overline{02}$ 54'13	12°51'45
retrograde	221 Nov 04 j 15:33	2° $\overline{02}$ 49'21		retrograde	229 Nov 20 j 14:42	18° $\overline{02}$ 11'58	

opposition	230 Feb 05 j 19:12	16°♂54'45	13°50'59	opposition	238 Feb 23 j 07:25	4°♂24'36	16°31'52
min. Earth dist.	230 Feb 08 j 17:04	16°♂50'11	32.08892 AU	min. Earth dist.	238 Feb 25 j 23:22	4°♂20'15	30.46550 AU
direct	230 Apr 27 j 12:39	15°♂34'20		direct	238 May 14 j 12:59	3°♂01'01	
max. Earth dist.	230 Aug 08 j 21:22	17°♂50'00	33.92020 AU	max. Earth dist.	238 Aug 27 j 06:49	5°♂29'06	32.29677 AU
conjunction	230 Aug 12 j 03:18	17°♂56'50	13°13'48	conjunction	238 Aug 30 j 03:19	5°♂35'34	15°38'42
minimum elong	230 Aug 12 j 02:53	17°♂56'48	13°13'48	minimum elong	238 Aug 30 j 02:58	5°♂35'32	15°38'42
retrograde	230 Nov 22 j 22:28	20°♂15'58		retrograde	238 Dec 11 j 09:39	8°♂05'47	
opposition	231 Feb 08 j 02:37	18°♂58'20	14°14'21	opposition	239 Feb 25 j 21:56	6°♂45'17	16°46'54
min. Earth dist.	231 Feb 11 j 00:43	18°♂53'43	31.86580 AU	min. Earth dist.	239 Feb 28 j 11:42	6°♂41'03	30.28815 AU
direct	231 Apr 29 j 17:36	17°♂37'27		direct	239 May 17 j 04:12	5°♂21'20	
max. Earth dist.	231 Aug 11 j 08:25	19°♂54'45	33.69690 AU	max. Earth dist.	239 Aug 29 j 23:37	7°♂50'47	32.12032 AU
conjunction	231 Aug 14 j 12:29	20°♂01'30	13°35'08	conjunction	239 Sep 01 j 18:49	7°♂57'11	15°51'50
minimum elong	231 Aug 14 j 12:06	20°♂01'28	13°35'07	minimum elong	239 Sep 01 j 18:32	7°♂57'09	15°51'50
retrograde	231 Nov 25 j 07:51	22°♂22'02		retrograde	239 Dec 14 j 00:55	10°♂28'38	
opposition	232 Feb 10 j 10:44	21°♂04'01	14°36'56	opposition	240 Feb 28 j 13:23	9°♂07'46	17°00'32
min. Earth dist.	232 Feb 13 j 07:03	20°♂59'30	31.64857 AU	min. Earth dist.	240 Mar 02 j 02:52	9°♂03'32	30.11744 AU
direct	232 May 01 j 00:54	19°♂42'43		direct	240 May 18 j 17:46	7°♂43'27	
max. Earth dist.	232 Aug 12 j 18:24	22°♂01'31	33.47964 AU	max. Earth dist.	240 Aug 31 j 18:11	10°♂14'20	31.95126 AU
conjunction	232 Aug 15 j 22:26	22°♂08'19	13°55'40	conjunction	240 Sep 03 j 10:55	10°♂20'33	16°03'36
minimum elong	232 Aug 15 j 22:02	22°♂08'17	13°55'40	minimum elong	240 Sep 03 j 10:38	10°♂20'31	16°03'36
retrograde	232 Nov 26 j 19:11	24°♂30'18		retrograde	240 Dec 15 j 18:24	12°♂53'09	
opposition	233 Feb 11 j 19:55	23°♂11'55	14°58'39	opposition	241 Mar 02 j 05:34	11°♂31'56	17°12'38
min. Earth dist.	233 Feb 14 j 16:05	23°♂07'23	31.43749 AU	min. Earth dist.	241 Mar 04 j 16:29	11°♂27'51	29.95421 AU
direct	233 May 03 j 05:58	21°♂50'13		direct	241 May 21 j 10:11	10°♂07'16	
max. Earth dist.	233 Aug 15 j 07:24	24°♂10'43	33.26846 AU	max. Earth dist.	241 Sep 03 j 12:01	12°♂39'24	31.79023 AU
conjunction	233 Aug 18 j 09:09	24°♂17'23	14°15'21	conjunction	241 Sep 06 j 03:26	12°♂45'32	16°13'54
minimum elong	233 Aug 18 j 08:47	24°♂17'21	14°15'21	minimum elong	241 Sep 06 j 03:12	12°♂45'31	16°13'54
retrograde	233 Nov 29 j 06:16	26°♂40'48		retrograde	241 Dec 18 j 11:40	15°♂19'15	
opposition	234 Feb 14 j 05:58	25°♂22'05	15°19'26	opposition	242 Mar 04 j 22:32	13°♂57'42	17°23'09
min. Earth dist.	234 Feb 17 j 00:48	25°♂17'36	31.23214 AU	min. Earth dist.	242 Mar 07 j 08:22	13°♂53'40	29.79937 AU
direct	234 May 05 j 14:58	24°♂00'00		direct	242 May 24 j 00:25	12°♂32'41	
max. Earth dist.	234 Aug 17 j 18:55	26°♂21'59	33.06301 AU	max. Earth dist.	242 Sep 06 j 08:34	15°♂06'13	31.63826 AU
conjunction	234 Aug 20 j 20:42	26°♂28'42	14°34'07	conjunction	242 Sep 08 j 20:42	15°♂12'04	16°22'39
minimum elong	234 Aug 20 j 20:19	26°♂28'40	14°34'07	minimum elong	242 Sep 08 j 20:28	15°♂12'03	16°22'39
retrograde	234 Dec 01 j 20:25	28°♂53'34		retrograde	242 Dec 21 j 04:00	17°♂46'50	
opposition	235 Feb 16 j 16:46	27°♂34'29	15°39'13	opposition	243 Mar 07 j 16:07	16°♂24'59	17°31'57
min. Earth dist.	235 Feb 19 j 10:59	27°♂30'02	31.03243 AU	min. Earth dist.	243 Mar 09 j 23:18	16°♂21'07	29.65359 AU
direct	235 May 08 j 00:19	26°♂12'01		direct	243 May 26 j 18:26	14°♂59'41	
max. Earth dist.	235 Aug 20 j 09:34	28°♂35'40	32.86301 AU	max. Earth dist.	243 Sep 09 j 03:45	17°♂34'22	31.49608 AU
conjunction	235 Aug 23 j 09:19	28°♂42'16	14°51'55	conjunction	243 Sep 11 j 14:27	17°♂40'07	16°29'47
minimum elong	235 Aug 23 j 08:58	28°♂42'14	14°51'55	minimum elong	243 Sep 11 j 14:16	17°♂40'06	16°29'46
	235 Sep 29 j 08:49	0°♂		retrograde	243 Dec 23 j 22:45	20°♂15'53	
retrograde	235 Dec 04 j 09:14	1°♂08'32		opposition	244 Mar 09 j 10:34	18°♂53'45	17°38'57
	236 Feb 12 j 10:53	30°♂		min. Earth dist.	244 Mar 11 j 15:37	18°♂50'02	29.51775 AU
opposition	236 Feb 19 j 04:51	29°♂49'06	15°57'57	direct	244 May 28 j 10:26	17°♂28'12	
min. Earth dist.	236 Feb 21 j 22:32	29°♂44'40	30.83793 AU	max. Earth dist.	244 Sep 11 j 01:50	20°♂04'12	31.36426 AU
direct	236 May 09 j 11:28	28°♂26'16					
	236 Jul 29 j 04:58	0°♂		conjunction	244 Sep 13 j 08:42	20°♂09'37	16°35'12
max. Earth dist.	236 Aug 21 j 23:08	0°♂51'22	32.66852 AU	minimum elong	244 Sep 13 j 08:33	20°♂09'36	16°35'12
				retrograde	244 Dec 25 j 16:56	22°♂46'20	
conjunction	236 Aug 24 j 22:26	0°♂57'59	15°08'39	opposition	245 Mar 12 j 05:44	21°♂23'58	17°44'06
minimum elong	236 Aug 24 j 22:04	0°♂57'57	15°08'39	min. Earth dist.	245 Mar 14 j 08:31	21°♂20'24	29.39195 AU
retrograde	236 Dec 06 j 01:21	3°♂25'38		direct	245 May 31 j 04:14	19°♂58'14	
opposition	237 Feb 20 j 17:39	2°♂05'50	16°15'31	max. Earth dist.	245 Sep 13 j 22:18	22°♂35'17	31.24295 AU
min. Earth dist.	237 Feb 23 j 09:49	2°♂01'29	30.64892 AU				
direct	237 May 11 j 23:32	0°♂42'38		conjunction	245 Sep 16 j 03:24	22°♂40'33	16°38'51
max. Earth dist.	237 Aug 24 j 14:50	3°♂09'16	32.47958 AU	minimum elong	245 Sep 16 j 03:18	22°♂40'32	16°38'51
				retrograde	245 Dec 28 j 13:17	25°♂18'09	
conjunction	237 Aug 27 j 12:34	3°♂15'47	15°24'17	opposition	246 Mar 15 j 01:17	23°♂55'36	17°47'19
minimum elong	237 Aug 27 j 12:15	3°♂15'46	15°24'16	min. Earth dist.	246 Mar 17 j 01:20	23°♂52'13	29.27636 AU
retrograde	237 Dec 08 j 16:37	5°♂44'45		direct	246 Jun 02 j 22:47	22°♂29'42	

max. Earth dist.	246 Sep 16 j 21:12	25° \mathbb{M} 07'55	31.13188 AU	conjunction	254 Oct 09 j 16:50	16° \mathbb{A} 00'34	15°48'21
				minimum elong	254 Oct 09 j 17:04	16° \mathbb{A} 00'35	15°48'22
conjunction	246 Sep 18 j 22:45	25° \mathbb{M} 12'51	16°40'42	max. Earth dist.	254 Oct 08 j 13:56	15° \mathbb{A} 57'50	30.60290 AU
minimum elong	246 Sep 18 j 22:40	25° \mathbb{M} 12'51	16°40'43	retrograde	255 Jan 21 j 08:54	18° \mathbb{A} 41'43	
retrograde	246 Dec 31 j 08:30	27° \mathbb{M} 51'16		opposition	255 Apr 08 j 06:14	17° \mathbb{A} 18'12	16°46'02
opposition	247 Mar 17 j 21:43	26° \mathbb{M} 28'32	17°48'36	min. Earth dist.	255 Apr 09 j 06:27	17° \mathbb{A} 16'29	28.67269 AU
min. Earth dist.	247 Mar 19 j 20:07	26° \mathbb{M} 25'16	29.17048 AU	direct	255 Jun 27 j 03:03	15° \mathbb{A} 51'59	
direct	247 Jun 05 j 18:47	25° \mathbb{M} 02'32					
max. Earth dist.	247 Sep 19 j 18:46	27° \mathbb{M} 41'38	31.03085 AU	conjunction	255 Oct 12 j 12:58	18° \mathbb{A} 37'14	15°33'18
				minimum elong	255 Oct 12 j 13:13	18° \mathbb{A} 37'15	15°33'18
conjunction	247 Sep 21 j 18:17	27° \mathbb{M} 46'23	16°40'44	max. Earth dist.	255 Oct 11 j 14:47	18° \mathbb{A} 34'58	30.58580 AU
minimum elong	247 Sep 21 j 18:15	27° \mathbb{M} 46'23	16°40'44	retrograde	256 Jan 24 j 04:18	21° \mathbb{A} 18'15	
	247 Nov 26 j 10:36	0° \mathbb{A}		opposition	256 Apr 10 j 04:57	19° \mathbb{A} 54'44	16°29'01
retrograde	248 Jan 03 j 06:14	0° \mathbb{A} 25'31		min. Earth dist.	256 Apr 11 j 01:48	19° \mathbb{A} 53'16	28.65908 AU
	248 Feb 11 j 08:37	30° \mathbb{R} \mathbb{M}		direct	256 Jun 29 j 01:49	18° \mathbb{A} 28'38	
opposition	248 Mar 19 j 18:34	29° \mathbb{M} 02'39	17°47'54				
min. Earth dist.	248 Mar 21 j 13:40	28° \mathbb{M} 59'37	29.07420 AU	conjunction	256 Oct 14 j 08:48	21° \mathbb{A} 13'30	15°16'24
direct	248 Jun 07 j 15:23	27° \mathbb{M} 36'33		minimum elong	256 Oct 14 j 09:05	21° \mathbb{A} 13'32	15°16'25
	248 Sep 14 j 20:29	0° \mathbb{A}		max. Earth dist.	256 Oct 13 j 13:15	21° \mathbb{A} 11'31	30.58131 AU
max. Earth dist.	248 Sep 21 j 17:58	0° \mathbb{A} 16'34	30.93954 AU	retrograde	257 Jan 26 j 00:38	23° \mathbb{A} 54'18	
				opposition	257 Apr 13 j 03:25	22° \mathbb{A} 30'50	16°10'00
conjunction	248 Sep 23 j 14:22	0° \mathbb{A} 21'01	16°38'55	min. Earth dist.	257 Apr 13 j 20:19	22° \mathbb{A} 29'38	28.65806 AU
minimum elong	248 Sep 23 j 14:21	0° \mathbb{A} 21'01	16°38'56	direct	257 Jul 01 j 23:34	21° \mathbb{A} 04'52	
retrograde	249 Jan 05 j 02:44	3° \mathbb{A} 00'47					
opposition	249 Mar 22 j 16:06	1° \mathbb{A} 37'46	17°45'11	conjunction	257 Oct 17 j 04:28	23° \mathbb{A} 49'18	14°57'41
min. Earth dist.	249 Mar 24 j 09:47	1° \mathbb{A} 34'50	28.98735 AU	minimum elong	257 Oct 17 j 04:46	23° \mathbb{A} 49'20	14°57'41
direct	249 Jun 10 j 11:55	0° \mathbb{A} 11'36		max. Earth dist.	257 Oct 16 j 13:39	23° \mathbb{A} 47'48	30.58953 AU
max. Earth dist.	249 Sep 24 j 16:41	2° \mathbb{A} 52'21	30.85809 AU	retrograde	258 Jan 28 j 18:27	26° \mathbb{A} 29'48	
				opposition	258 Apr 16 j 01:50	25° \mathbb{A} 06'25	15°49'05
conjunction	249 Sep 26 j 10:30	2° \mathbb{A} 56'34	16°35'13	min. Earth dist.	258 Apr 16 j 15:52	25° \mathbb{A} 05'26	28.66924 AU
minimum elong	249 Sep 26 j 10:32	2° \mathbb{A} 56'34	16°35'13	direct	258 Jul 04 j 22:05	23° \mathbb{A} 40'39	
retrograde	250 Jan 08 j 01:08	5° \mathbb{A} 36'50					
opposition	250 Mar 25 j 13:51	4° \mathbb{A} 13'42	17°40'26	conjunction	258 Oct 19 j 23:42	26° \mathbb{A} 24'32	14°37'15
min. Earth dist.	250 Mar 27 j 04:01	4° \mathbb{A} 11'00	28.90985 AU	minimum elong	258 Oct 20 j 00:03	26° \mathbb{A} 24'34	14°37'15
direct	250 Jun 13 j 11:04	2° \mathbb{A} 47'29		max. Earth dist.	258 Oct 19 j 11:28	26° \mathbb{A} 23'17	30.61012 AU
max. Earth dist.	250 Sep 27 j 15:53	5° \mathbb{A} 28'51	30.78623 AU	retrograde	259 Jan 31 j 15:14	29° \mathbb{A} 04'38	
				opposition	259 Apr 18 j 23:52	27° \mathbb{A} 41'22	15°26'20
conjunction	250 Sep 29 j 07:02	5° \mathbb{A} 32'48	16°29'39	min. Earth dist.	259 Apr 19 j 09:39	27° \mathbb{A} 40'41	28.69241 AU
minimum elong	250 Sep 29 j 07:06	5° \mathbb{A} 32'49	16°29'39	direct	259 Jul 07 j 19:25	26° \mathbb{A} 15'50	
retrograde	251 Jan 10 j 21:29	8° \mathbb{A} 13'29					
opposition	251 Mar 28 j 12:00	6° \mathbb{A} 50'14	17°33'40	conjunction	259 Oct 22 j 18:46	28° \mathbb{A} 59'04	14°15'09
min. Earth dist.	251 Mar 30 j 00:41	6° \mathbb{A} 47'39	28.84183 AU	minimum elong	259 Oct 22 j 19:07	28° \mathbb{A} 59'06	14°15'08
direct	251 Jun 16 j 08:10	5° \mathbb{A} 23'59		max. Earth dist.	259 Oct 22 j 10:50	28° \mathbb{A} 58'16	30.64253 AU
max. Earth dist.	251 Sep 30 j 15:45	8° \mathbb{A} 05'55	30.72444 AU	retrograde	259 Nov 17 j 13:51	0° \mathbb{M}	
				opposition	260 Feb 03 j 08:58	1° \mathbb{M} 38'43	
conjunction	251 Oct 02 j 03:37	8° \mathbb{A} 09'33	16°22'10	min. Earth dist.	260 Apr 20 j 21:57	0° \mathbb{M} 15'36	15°01'49
minimum elong	251 Oct 02 j 03:44	8° \mathbb{A} 09'34	16°22'10		260 Apr 21 j 05:25	0° \mathbb{M} 15'04	28.72699 AU
retrograde	252 Jan 13 j 19:08	10° \mathbb{A} 50'30		direct	260 Apr 30 j 06:50	30° \mathbb{R} \mathbb{A}	
opposition	252 Mar 30 j 10:24	9° \mathbb{A} 27'10	17°24'50		260 Jul 09 j 16:59	28° \mathbb{A} 50'19	
min. Earth dist.	252 Mar 31 j 19:25	9° \mathbb{A} 24'50	28.78354 AU		260 Sep 13 j 13:06	0° \mathbb{M}	
direct	252 Jun 18 j 07:50	8° \mathbb{A} 00'54					
max. Earth dist.	252 Oct 02 j 14:40	10° \mathbb{A} 43'10	30.67284 AU	conjunction	260 Oct 24 j 13:13	1° \mathbb{M} 32'48	13°51'29
				minimum elong	260 Oct 24 j 13:36	1° \mathbb{M} 32'50	13°51'29
conjunction	252 Oct 04 j 00:02	10° \mathbb{A} 46'34	16°12'48	max. Earth dist.	260 Oct 24 j 08:04	1° \mathbb{M} 32'17	30.68632 AU
minimum elong	252 Oct 04 j 00:12	10° \mathbb{A} 46'34	16°12'49	retrograde	261 Feb 05 j 04:40	4° \mathbb{M} 11'53	
retrograde	253 Jan 15 j 16:51	13° \mathbb{A} 27'42		opposition	261 Apr 23 j 19:31	2° \mathbb{M} 48'55	14°35'41
opposition	253 Apr 02 j 09:03	12° \mathbb{A} 04'16	17°13'57	min. Earth dist.	261 Apr 23 j 22:48	2° \mathbb{M} 48'41	28.77247 AU
min. Earth dist.	253 Apr 03 j 15:52	12° \mathbb{A} 02'06	28.73555 AU	direct	261 Jul 12 j 16:12	1° \mathbb{M} 23'54	
direct	253 Jun 21 j 05:27	10° \mathbb{A} 38'00					
				conjunction	261 Oct 27 j 07:29	4° \mathbb{M} 05'33	13°26'21
conjunction	253 Oct 06 j 20:33	13° \mathbb{A} 23'38	16°01'32	minimum elong	261 Oct 27 j 07:51	4° \mathbb{M} 05'35	13°26'20
minimum elong	253 Oct 06 j 20:45	13° \mathbb{A} 23'39	16°01'31	max. Earth dist.	261 Oct 27 j 05:57	4° \mathbb{M} 05'24	30.74075 AU
max. Earth dist.	253 Oct 05 j 15:12	13° \mathbb{A} 20'39	30.63217 AU	retrograde	262 Feb 07 j 22:16	6° \mathbb{M} 43'59	
retrograde	254 Jan 18 j 12:14	16° \mathbb{A} 04'49		opposition	262 Apr 26 j 16:43	5° \mathbb{M} 21'11	14°08'00
opposition	254 Apr 05 j 07:32	14° \mathbb{A} 41'20	17°01'01	min. Earth dist.	262 Apr 26 j 17:55	5° \mathbb{M} 21'06	28.82835 AU
min. Earth dist.	254 Apr 06 j 10:50	14° \mathbb{A} 39'25	28.69831 AU	direct	262 Jul 15 j 12:43	3° \mathbb{M} 56'27	
direct	254 Jun 24 j 05:23	13° \mathbb{A} 15'05					

conjunction	262 Oct 30 j 01:15	6°M37'10	12°59'51	conjunction	270 Nov 17 j 23:34	25°M54'47	8°49'33
minimum elong	262 Oct 30 j 01:39	6°M37'13	12°59'51	minimum elong	270 Nov 17 j 23:55	25°M54'49	8°49'33
max. Earth dist.	262 Oct 30 j 02:42	6°M37'19	30.80551 AU	max. Earth dist.	270 Nov 19 j 02:26	25°M57'21	31.67988 AU
retrograde	263 Feb 10 j 16:45	9°M14'52		retrograde	271 Mar 01 j 11:08	28°M24'35	
opposition	263 Apr 29 j 13:31	7°M52'15	13°38'53	min. Earth dist.	271 May 18 j 11:16	27°M05'38	29.77882 AU
min. Earth dist.	263 Apr 29 j 10:46	7°M52'26	28.89412 AU	opposition	271 May 19 j 14:21	27°M03'50	9°06'40
direct	263 Jul 18 j 11:37	6°M27'48		direct	271 Aug 07 j 17:28	25°M42'09	
conjunction	263 Nov 01 j 18:21	9°M07'31	12°32'03	conjunction	271 Nov 20 j 11:05	28°M11'57	8°14'54
minimum elong	263 Nov 01 j 18:44	9°M07'33	12°32'03	minimum elong	271 Nov 20 j 11:24	28°M11'59	8°14'54
max. Earth dist.	263 Nov 01 j 22:41	9°M07'56	30.88000 AU	max. Earth dist.	271 Nov 21 j 16:19	28°M14'43	31.83436 AU
retrograde	264 Feb 13 j 10:45	11°M44'24			272 Jan 12 j 19:08	0°Z	
opposition	264 May 01 j 09:59	10°M21'57	13°08'26	retrograde	272 Mar 02 j 23:25	0°Z40'40	
min. Earth dist.	264 May 01 j 04:47	10°M22'18	28.96966 AU		272 Apr 24 j 23:05	30°RM	
direct	264 Jul 20 j 08:34	8°M57'48		min. Earth dist.	272 May 19 j 22:22	29°M22'18	29.93449 AU
conjunction	264 Nov 03 j 11:00	11°M36'25	12°03'05	opposition	272 May 21 j 05:23	29°M20'15	8°29'18
minimum elong	264 Nov 03 j 11:24	11°M36'28	12°03'06	direct	272 Aug 09 j 09:51	27°M59'00	
max. Earth dist.	264 Nov 03 j 18:48	11°M37'11	30.96427 AU		272 Nov 09 j 15:30	0°Z	
retrograde	265 Feb 15 j 02:41	14°M12'25		conjunction	272 Nov 21 j 22:05	0°Z27'29	7°39'50
opposition	265 May 04 j 05:40	12°M50'09	12°36'46	minimum elong	272 Nov 21 j 22:23	0°Z27'31	7°39'50
min. Earth dist.	265 May 03 j 21:05	12°M50'44	29.05473 AU	max. Earth dist.	272 Nov 23 j 06:23	0°Z30'31	31.99739 AU
direct	265 Jul 23 j 06:45	11°M26'17		retrograde	273 Mar 05 j 11:08	2°Z55'05	
conjunction	265 Nov 06 j 02:50	14°M03'45	11°33'02	min. Earth dist.	273 May 22 j 10:49	1°Z37'10	30.09867 AU
minimum elong	265 Nov 06 j 03:13	14°M03'47	11°33'01	opposition	273 May 23 j 19:43	1°Z35'00	7°51'33
max. Earth dist.	265 Nov 06 j 12:58	14°M04'45	31.05809 AU	direct	273 Aug 11 j 23:09	0°Z14'13	
retrograde	265 Nov 30 j 12:13	15°M		conjunction	273 Nov 24 j 08:25	2°Z41'21	7°04'26
opposition	266 Feb 17 j 18:40	16°M38'47		minimum elong	273 Nov 24 j 08:41	2°Z41'23	7°04'26
min. Earth dist.	266 May 07 j 00:47	15°M16'43	12°03'58	max. Earth dist.	273 Nov 25 j 19:11	2°Z44'36	32.16832 AU
direct	266 May 06 j 13:12	15°M17'30	29.14961 AU	retrograde	274 Mar 07 j 21:28	5°Z07'49	
conjunction	266 May 17 j 08:11	15°RM		min. Earth dist.	274 May 24 j 21:24	3°Z50'26	30.27030 AU
retrograde	266 Jul 26 j 01:50	13°M53'09		opposition	274 May 26 j 09:17	3°Z48'06	7°13'32
direct	266 Sep 29 j 02:01	15°M		direct	274 Aug 14 j 13:57	2°Z27'45	
conjunction	266 Nov 08 j 18:02	16°M29'24	11°01'58	conjunction	274 Nov 26 j 17:56	4°Z53'32	6°28'50
minimum elong	266 Nov 08 j 18:26	16°M29'27	11°01'58	minimum elong	274 Nov 26 j 18:12	4°Z53'34	6°28'49
max. Earth dist.	266 Nov 09 j 08:17	16°M30'48	31.16177 AU	max. Earth dist.	274 Nov 28 j 06:37	4°Z56'55	32.34605 AU
retrograde	267 Feb 20 j 08:29	19°M03'26		retrograde	275 Mar 10 j 08:21	7°Z18'51	
opposition	267 May 09 j 19:15	17°M41'34	11°30'09	min. Earth dist.	275 May 27 j 08:13	6°Z01'56	30.44882 AU
min. Earth dist.	267 May 09 j 04:46	17°M42'33	29.25443 AU	opposition	275 May 28 j 22:16	5°Z59'28	6°35'20
direct	267 Jul 28 j 22:43	16°M18'20		direct	275 Aug 17 j 03:18	4°Z39'33	
conjunction	267 Nov 11 j 08:24	18°M53'19	10°30'00	conjunction	275 Nov 29 j 02:59	7°Z03'59	5°53'04
minimum elong	267 Nov 11 j 08:47	18°M53'22	10°29'59	minimum elong	275 Nov 29 j 03:13	7°Z04'00	5°53'04
max. Earth dist.	267 Nov 12 j 00:54	18°M54'56	31.27563 AU	max. Earth dist.	275 Nov 30 j 18:33	7°Z07'37	32.53013 AU
retrograde	268 Feb 22 j 23:33	21°M26'20		retrograde	276 Mar 11 j 17:20	9°Z28'07	
opposition	268 May 11 j 13:06	20°M04'41	10°55'25	min. Earth dist.	276 May 28 j 18:28	8°Z11'39	30.63341 AU
min. Earth dist.	268 May 10 j 18:37	20°M05'56	29.36989 AU	opposition	276 May 30 j 10:29	8°Z09'04	5°57'03
direct	268 Jul 30 j 16:34	18°M41'47		direct	276 Aug 18 j 18:28	6°Z49'34	
conjunction	268 Nov 12 j 22:08	21°M15'30	9°57'12	conjunction	276 Nov 30 j 11:08	9°Z12'37	5°17'15
minimum elong	268 Nov 12 j 22:31	21°M15'32	9°57'12	minimum elong	276 Nov 30 j 11:21	9°Z12'39	5°17'15
max. Earth dist.	268 Nov 13 j 18:58	21°M17'31	31.40003 AU	max. Earth dist.	276 Dec 02 j 03:50	9°Z16'19	32.71980 AU
retrograde	269 Feb 24 j 10:42	23°M47'27		retrograde	277 Mar 14 j 02:05	11°Z35'35	
min. Earth dist.	269 May 13 j 09:20	22°M27'29	29.49589 AU	min. Earth dist.	277 May 31 j 03:08	10°Z19'34	30.82372 AU
opposition	269 May 14 j 06:17	22°M26'05	10°19'50	opposition	277 Jun 01 j 21:55	10°Z16'50	5°18'46
direct	269 Aug 02 j 10:46	21°M03'34		direct	277 Aug 21 j 05:56	8°Z57'44	
conjunction	269 Nov 15 j 11:08	23°M35'59	9°23'41	conjunction	277 Dec 02 j 18:46	11°Z19'24	4°41'27
minimum elong	269 Nov 15 j 11:29	23°M36'01	9°23'41	minimum elong	277 Dec 02 j 18:57	11°Z19'25	4°41'27
max. Earth dist.	269 Nov 16 j 10:03	23°M38'11	31.53493 AU	max. Earth dist.	277 Dec 04 j 14:26	11°Z23'20	32.91474 AU
retrograde	270 Feb 26 j 23:58	26°M06'51		retrograde	278 Mar 16 j 06:40	13°Z41'09	
opposition	270 May 16 j 22:29	24°M45'47	9°43'33	min. Earth dist.	278 Jun 02 j 12:34	12°Z25'30	31.01938 AU
min. Earth dist.	270 May 15 j 21:23	24°M47'27	29.63238 AU	opposition	278 Jun 04 j 08:29	12°Z22'42	4°40'33
direct	270 Aug 05 j 02:43	23°M23'40		direct	278 Aug 23 j 19:04	11°Z03'59	

conjunction	278 Dec 05 j 01:29	13°♂24'15	4°05'43	conjunction	286 Dec 20 j 06:41	28°♂58'58	0°-31'-3
minimum elong	278 Dec 05 j 01:39	13°♂24'16	4°05'43	minimum elong	286 Dec 20 j 06:39	28°♂58'58	0°31'04
max. Earth dist.	278 Dec 06 j 22:08	13°♂28'15	33.11498 AU	max. Earth dist.	286 Dec 22 j 19:16	29°♂04'04	34.91291 AU
retrograde	279 Mar 18 j 13:08	15°♂44'47			287 Jan 20 j 18:33	0°♂	
min. Earth dist.	279 Jun 04 j 19:16	14°♂29'37	31.22073 AU	retrograde	287 Apr 02 j 16:05	1°♂10'34	
opposition	279 Jun 06 j 18:20	14°♂26'38	4°02'28		287 Jun 19 j 13:59	30°♂♂	
direct	279 Aug 26 j 05:49	13°♂08'17		min. Earth dist.	287 Jun 20 j 09:55	29°♂58'48	33.03309 AU
				opposition	287 Jun 22 j 22:57	29°♂55'06	0°-50'-29
conjunction	279 Dec 07 j 07:25	15°♂27'10	3°30'07	direct	287 Sep 11 j 14:24	28°♂40'02	
minimum elong	279 Dec 07 j 07:33	15°♂27'11	3°30'07		287 Nov 27 j 06:21	0°♂	
max. Earth dist.	279 Dec 09 j 07:06	15°♂31'24	33.32069 AU	conjunction	287 Dec 22 j 07:36	0°♂48'51	-1°-3'-50
retrograde	280 Mar 19 j 17:18	17°♂46'31		minimum elong	287 Dec 22 j 07:33	0°♂48'51	1°03'51
min. Earth dist.	280 Jun 06 j 03:21	16°♂31'41	31.42804 AU	max. Earth dist.	287 Dec 24 j 20:34	0°♂53'56	35.15550 AU
opposition	280 Jun 08 j 03:34	16°♂28'39	3°24'35	retrograde	288 Apr 03 j 16:46	2°♂59'25	
direct	280 Aug 27 j 15:25	15°♂10'40		min. Earth dist.	288 Jun 21 j 11:24	1°♂48'06	33.27689 AU
conjunction	280 Dec 08 j 12:43	17°♂28'10	2°54'42	opposition	288 Jun 24 j 02:32	1°♂44'18	-1°-24'-58
minimum elong	280 Dec 08 j 12:50	17°♂28'11	2°54'42	direct	288 Sep 12 j 18:17	0°♂29'37	
max. Earth dist.	280 Dec 10 j 14:01	17°♂32'31	33.53235 AU	conjunction	288 Dec 23 j 08:06	2°♂37'17	-1°-36'-6
retrograde	281 Mar 21 j 21:56	19°♂46'20		minimum elong	288 Dec 23 j 08:03	2°♂37'17	1°36'07
min. Earth dist.	281 Jun 08 j 08:20	18°♂32'00	31.64151 AU	max. Earth dist.	288 Dec 25 j 22:30	2°♂42'27	35.39957 AU
opposition	281 Jun 10 j 11:39	18°♂28'47	2°46'58	retrograde	289 Apr 05 j 17:21	4°♂46'50	
direct	281 Aug 30 j 00:21	17°♂11'11		min. Earth dist.	289 Jun 23 j 14:05	3°♂35'50	33.52227 AU
conjunction	281 Dec 10 j 17:17	19°♂27'22	2°19'32	opposition	289 Jun 26 j 05:28	3°♂32'02	-1°-58'-51
minimum elong	281 Dec 10 j 17:22	19°♂27'22	2°19'32	direct	289 Sep 14 j 19:53	2°♂17'45	
max. Earth dist.	281 Dec 12 j 20:50	19°♂31'52	33.74989 AU	conjunction	289 Dec 25 j 08:05	4°♂24'16	-2°-7'-50
retrograde	282 Mar 24 j 03:15	21°♂44'22		minimum elong	289 Dec 25 j 08:01	4°♂24'15	2°07'52
min. Earth dist.	282 Jun 10 j 14:20	20°♂30'25	31.86121 AU	max. Earth dist.	289 Dec 27 j 23:28	4°♂29'28	35.64493 AU
opposition	282 Jun 12 j 19:17	20°♂27'08	2°09'39	retrograde	290 Apr 07 j 17:08	6°♂32'47	
direct	282 Sep 01 j 06:26	19°♂09'56		min. Earth dist.	290 Jun 25 j 15:00	5°♂22'09	33.76876 AU
conjunction	282 Dec 12 j 21:11	21°♂24'49	1°44'39	opposition	290 Jun 28 j 07:45	5°♂18'18	-2°-32'-8
minimum elong	282 Dec 12 j 21:15	21°♂24'49	1°44'39	direct	290 Sep 16 j 23:28	4°♂04'21	
max. Earth dist.	282 Dec 15 j 02:58	21°♂29'29	33.97334 AU	conjunction	290 Dec 27 j 07:11	6°♂09'45	-2°-39'-1
retrograde	283 Mar 26 j 06:43	23°♂40'42		minimum elong	290 Dec 27 j 07:05	6°♂09'44	2°39'02
min. Earth dist.	283 Jun 12 j 18:55	22°♂27'13	32.08660 AU	max. Earth dist.	290 Dec 29 j 23:02	6°♂14'56	35.89126 AU
opposition	283 Jun 15 j 02:07	22°♂23'48	1°32'42	retrograde	291 Apr 09 j 18:49	8°♂17'15	
direct	283 Sep 03 j 14:17	21°♂07'01		min. Earth dist.	291 Jun 27 j 15:36	7°♂06'57	34.01674 AU
conjunction	283 Dec 15 j 00:22	23°♂20'38	1°10'06	opposition	291 Jun 30 j 09:32	7°♂03'03	-3°-4'-47
minimum elong	283 Dec 15 j 00:25	23°♂20'38	1°10'07	direct	291 Sep 18 j 23:51	5°♂49'27	
max. Earth dist.	283 Dec 17 j 07:26	23°♂25'22	34.20204 AU	conjunction	291 Dec 29 j 05:56	7°♂53'43	-3°-9'-38
retrograde	284 Mar 27 j 11:37	25°♂35'25		minimum elong	291 Dec 29 j 05:50	7°♂53'43	3°09'39
min. Earth dist.	284 Jun 13 j 22:59	24°♂22'23	32.31740 AU	max. Earth dist.	291 Dec 31 j 23:45	7°♂59'02	36.13909 AU
opposition	284 Jun 16 j 08:19	24°♂18'52	0°56'10	retrograde	292 Apr 10 j 16:49	10°♂00'13	
direct	284 Sep 04 j 20:12	23°♂02'31		min. Earth dist.	292 Jun 28 j 16:08	8°♂50'12	34.26644 AU
conjunction	284 Dec 16 j 03:04	25°♂14'54	0°35'57	opposition	292 Jul 01 j 10:32	8°♂46'18	-3°-36'-48
minimum elong	284 Dec 16 j 03:06	25°♂14'54	0°35'58	direct	292 Sep 20 j 02:09	7°♂33'01	
max. Earth dist.	284 Dec 18 j 12:50	25°♂19'49	34.43548 AU	conjunction	292 Dec 30 j 03:56	9°♂36'12	-3°-39'-39
retrograde	285 Mar 29 j 13:40	27°♂28'35		minimum elong	292 Dec 30 j 03:49	9°♂36'12	3°39'40
min. Earth dist.	285 Jun 16 j 03:28	26°♂15'58	32.55254 AU	max. Earth dist.	293 Jan 01 j 21:55	9°♂41'29	36.38874 AU
opposition	285 Jun 18 j 13:50	26°♂12'24	0°20'06	retrograde	293 Apr 12 j 14:48	11°♂41'43	
direct	285 Sep 07 j 03:58	24°♂56'29		min. Earth dist.	293 Jun 30 j 14:22	10°♂32'05	34.51840 AU
conjunction	285 Dec 18 j 05:05	27°♂07'40	0°02'17	opposition	293 Jul 03 j 10:54	10°♂28'05	-4°-8'-9
minimum elong	285 Dec 18 j 05:05	27°♂07'40	0°02'16	direct	293 Sep 22 j 03:08	9°♂15'08	
behind sun begin	285 Dec 17 j 22:43	27°♂07'09		conjunction	294 Jan 01 j 01:30	11°♂17'16	-4°-9'-3
behind sun end	285 Dec 18 j 11:26	27°♂08'10		minimum elong	294 Jan 01 j 01:22	11°♂17'15	4°09'05
max. Earth dist.	285 Dec 20 j 15:20	27°♂12'35	34.67267 AU	max. Earth dist.	294 Jan 03 j 21:42	11°♂22'41	36.64056 AU
desc. node	286 Jan 11 j 11:37	27°♂55'50		retrograde	294 Apr 14 j 09:38	13°♂21'50	
retrograde	286 Mar 31 j 16:53	29°♂20'18		min. Earth dist.	294 Jul 02 j 14:00	12°♂12'29	34.77272 AU
min. Earth dist.	286 Jun 18 j 05:46	28°♂08'10	32.79138 AU	opposition	294 Jul 05 j 10:43	12°♂08'28	-4°-38'-50
opposition	286 Jun 20 j 18:34	28°♂04'28	0°-15'-27	direct	294 Sep 24 j 05:43	10°♂55'53	
direct	286 Sep 09 j 08:42	26°♂48'59					

conjunction	295 Jan 02 j 22:33	12°☾56'59	-4°-37'-50	retrograde	303 Apr 28 j 15:59	27°☾30'11	
minimum elong	295 Jan 02 j 22:24	12°☾56'58	4°37'51	min. Earth dist.	303 Jul 17 j 08:02	26°☾23'36	37.10330 AU
max. Earth dist.	295 Jan 05 j 19:07	13°☾02'24	36.89480 AU	opposition	303 Jul 20 j 10:09	26°☾19'28	-8°-43'-48
retrograde	295 Apr 16 j 05:57	15°☾00'37		direct	303 Oct 09 j 06:23	25°☾09'51	
min. Earth dist.	295 Jul 04 j 11:04	13°☾51'41	35.02944 AU				
opposition	295 Jul 07 j 09:57	13°☾47'34	-5°-8'-49	conjunction	304 Jan 17 j 00:48	27°☾02'46	-8°-28'-24
direct	295 Sep 26 j 05:48	12°☾35'20		minimum elong	304 Jan 17 j 00:35	27°☾02'45	8°28'26
				max. Earth dist.	304 Jan 20 j 02:50	27°☾08'15	39.20829 AU
conjunction	296 Jan 04 j 19:01	14°☾35'25	-5°-6'00	retrograde	304 Apr 29 j 09:38	28°☾58'57	
minimum elong	296 Jan 04 j 18:52	14°☾35'25	5°06'01	min. Earth dist.	304 Jul 18 j 02:44	27°☾52'37	37.35788 AU
max. Earth dist.	296 Jan 07 j 17:02	14°☾40'55	37.15108 AU	opposition	304 Jul 21 j 05:02	27°☾48'29	-9°-7'-37
retrograde	296 Apr 17 j 02:35	16°☾38'11		direct	304 Oct 10 j 01:05	26°☾39'08	
min. Earth dist.	296 Jul 05 j 09:37	15°☾29'33	35.28825 AU				
opposition	296 Jul 08 j 08:47	15°☾25'26	-5°-38'-6	conjunction	305 Jan 17 j 17:37	28°☾31'13	-8°-50'-53
direct	296 Sep 27 j 04:00	14°☾13'34		minimum elong	305 Jan 17 j 17:25	28°☾31'12	8°50'54
				max. Earth dist.	305 Jan 20 j 19:11	28°☾36'38	39.46037 AU
conjunction	297 Jan 05 j 15:14	16°☾12'41	-5°-33'-31		305 Mar 16 j 03:25	0°≈	
minimum elong	297 Jan 05 j 15:04	16°☾12'40	5°33'31	retrograde	305 May 01 j 04:17	0°≈26'39	
max. Earth dist.	297 Jan 08 j 14:22	16°☾18'13	37.40913 AU		305 Jun 17 j 13:53	30°☾☾	
retrograde	297 Apr 18 j 23:10	18°☾14'34		min. Earth dist.	305 Jul 19 j 20:07	29°☾20'35	37.61188 AU
min. Earth dist.	297 Jul 07 j 06:31	17°☾06'17	35.54841 AU	opposition	305 Jul 22 j 23:20	29°☾16'25	-9°-30'-46
opposition	297 Jul 10 j 06:45	17°☾02'08	-6°-6'-42	direct	305 Oct 11 j 17:41	28°☾07'20	
direct	297 Sep 29 j 01:49	15°☾50'37					
				conjunction	306 Jan 19 j 10:10	29°☾58'38	-9°-12'-44
conjunction	298 Jan 07 j 10:52	17°☾48'48	-6°00'-23	minimum elong	306 Jan 19 j 09:56	29°☾58'37	9°12'45
minimum elong	298 Jan 07 j 10:41	17°☾48'48	6°00'25		306 Jan 20 j 04:49	0°≈	
max. Earth dist.	298 Jan 10 j 10:10	17°☾54'19	37.66810 AU	max. Earth dist.	306 Jan 22 j 13:11	0°≈04'07	39.71200 AU
retrograde	298 Apr 20 j 21:46	19°☾49'51		retrograde	306 May 02 j 19:14	1°≈53'19	
min. Earth dist.	298 Jul 09 j 03:17	18°☾41'55	35.80948 AU	min. Earth dist.	306 Jul 21 j 14:39	0°≈47'27	37.86552 AU
opposition	298 Jul 12 j 04:30	18°☾37'44	-6°-34'-35	opposition	306 Jul 24 j 17:22	0°≈43'20	-9°-53'-14
direct	298 Sep 30 j 20:43	17°☾26'34			306 Aug 29 j 00:57	30°☾☾	
				direct	306 Oct 13 j 13:18	29°☾34'33	
conjunction	299 Jan 09 j 06:06	19°☾23'50	-6°-26'-38		306 Nov 26 j 13:56	0°≈	
minimum elong	299 Jan 09 j 05:55	19°☾23'50	6°26'38				
max. Earth dist.	299 Jan 12 j 06:58	19°☾29'26	37.92748 AU	conjunction	307 Jan 21 j 02:07	1°≈25'04	-9°-33'-57
retrograde	299 Apr 22 j 16:19	21°☾24'03		minimum elong	307 Jan 21 j 01:54	1°≈25'03	9°33'58
min. Earth dist.	299 Jul 11 j 00:48	20°☾16'24	36.07053 AU	max. Earth dist.	307 Jan 24 j 04:41	1°≈30'30	39.96349 AU
opposition	299 Jul 14 j 01:47	20°☾12'15	-7°-1'-48	retrograde	307 May 04 j 10:28	3°≈19'03	
direct	299 Oct 02 j 19:09	19°☾01'26		min. Earth dist.	307 Jul 23 j 06:46	2°≈13'31	38.11906 AU
				opposition	307 Jul 26 j 10:57	2°≈09'19	-10°-15'-1
conjunction	300 Jan 11 j 01:01	20°☾57'48	-6°-52'-14	direct	307 Oct 15 j 07:57	1°≈00'49	
minimum elong	300 Jan 11 j 00:49	20°☾57'47	6°52'16				
max. Earth dist.	300 Jan 14 j 01:16	21°☾03'19	38.18647 AU	conjunction	308 Jan 22 j 17:52	2°≈50'37	-9°-54'-33
retrograde	300 Apr 23 j 11:37	22°☾57'11		minimum elong	308 Jan 22 j 17:39	2°≈50'36	9°54'33
min. Earth dist.	300 Jul 11 j 20:15	21°☾49'53	36.33099 AU	max. Earth dist.	308 Jan 25 j 21:29	2°≈56'05	40.21472 AU
opposition	300 Jul 14 j 22:28	21°☾45'41	-7°-28'-19	retrograde	308 May 05 j 01:23	4°≈43'55	
direct	300 Oct 03 j 16:26	20°☾35'11		min. Earth dist.	308 Jul 24 j 00:34	3°≈38'36	38.37234 AU
				opposition	308 Jul 27 j 04:08	3°≈34'28	-10°-36'-8
conjunction	301 Jan 11 j 19:37	22°☾30'42	-7°-17'-13	direct	308 Oct 16 j 01:53	2°≈26'16	
minimum elong	301 Jan 11 j 19:25	22°☾30'41	7°17'14				
max. Earth dist.	301 Jan 14 j 21:03	22°☾36'16	38.44433 AU	conjunction	309 Jan 23 j 09:21	4°≈15'20	-10°-14'-31
retrograde	301 Apr 25 j 04:51	24°☾29'16		minimum elong	309 Jan 23 j 09:09	4°≈15'19	10°14'32
min. Earth dist.	301 Jul 13 j 17:27	23°☾22'11	36.59009 AU	max. Earth dist.	309 Jan 26 j 13:14	4°≈20'48	40.46559 AU
opposition	301 Jul 16 j 18:52	23°☾18'03	-7°-54'-9	retrograde	309 May 06 j 16:16	6°≈07'59	
direct	301 Oct 05 j 14:25	22°☾07'52		min. Earth dist.	309 Jul 25 j 16:30	5°≈02'59	38.62483 AU
				opposition	309 Jul 28 j 20:51	4°≈58'49	-10°-56'-35
conjunction	302 Jan 13 j 13:46	24°☾02'30	-7°-41'-34	direct	309 Oct 17 j 19:19	3°≈50'55	
minimum elong	302 Jan 13 j 13:34	24°☾02'29	7°41'36				
max. Earth dist.	302 Jan 16 j 14:48	24°☾08'00	38.70063 AU	conjunction	310 Jan 25 j 00:19	5°≈39'18	-10°-33'-53
retrograde	302 Apr 26 j 21:47	26°☾00'16		minimum elong	310 Jan 25 j 00:06	5°≈39'17	10°33'54
min. Earth dist.	302 Jul 15 j 12:12	24°☾53'30	36.84743 AU	max. Earth dist.	310 Jan 28 j 03:52	5°≈44'42	40.71537 AU
opposition	302 Jul 18 j 14:38	24°☾49'19	-8°-19'-19	retrograde	310 May 08 j 10:19	7°≈31'19	
direct	302 Oct 07 j 11:26	23°☾39'26		min. Earth dist.	310 Jul 27 j 08:59	6°≈26'34	38.87621 AU
				opposition	310 Jul 30 j 13:22	6°≈22'25	-11°-16'-24
conjunction	303 Jan 15 j 07:29	25°☾33'12	-8°-5'-18	direct	310 Oct 19 j 09:17	5°≈14'49	
minimum elong	303 Jan 15 j 07:17	25°☾33'11	8°05'19				
max. Earth dist.	303 Jan 18 j 08:41	25°☾38'40	38.95513 AU	conjunction	311 Jan 26 j 15:15	7°≈02'32	-10°-52'-39

minimum elong	311 Jan 26 j 15:03	7°02'32	10°52'40	conjunction	319 Feb 06 j 03:59	17°40'42	-13°-2'-50
max. Earth dist.	311 Jan 29 j 19:47	7°07'59	40.96376 AU	minimum elong	319 Feb 06 j 03:48	17°40'41	13°02'52
retrograde	311 May 10 j 02:21	8°53'56		max. Earth dist.	319 Feb 09 j 05:44	17°45'42	42.84661 AU
min. Earth dist.	311 Jul 29 j 01:47	7°49'24	39.12569 AU	retrograde	319 May 20 j 12:59	19°27'15	
opposition	311 Aug 01 j 05:29	7°45'19	-11°-35'-36	min. Earth dist.	319 Aug 08 j 23:58	18°24'11	41.01424 AU
direct	311 Oct 21 j 00:14	6°38'00		opposition	319 Aug 12 j 01:58	18°20'18	-13°-48'-8
				direct	319 Oct 31 j 23:12	17°14'45	
conjunction	312 Jan 28 j 05:46	8°25'05	-11°-10'-50				
minimum elong	312 Jan 28 j 05:33	8°25'04	11°10'51	conjunction	320 Feb 07 j 16:13	18°56'50	-13°-16'-41
max. Earth dist.	312 Jan 31 j 09:10	8°30'24	41.20994 AU	minimum elong	320 Feb 07 j 16:03	18°56'49	13°16'41
retrograde	312 May 10 j 18:26	10°15'51		max. Earth dist.	320 Feb 10 j 18:15	19°01'51	43.07115 AU
min. Earth dist.	312 Jul 29 j 16:57	9°11'36	39.37270 AU	retrograde	320 May 20 j 23:45	20°42'51	
opposition	312 Aug 01 j 21:16	9°07'30	-11°-54'-11	min. Earth dist.	320 Aug 09 j 14:07	19°39'55	41.23993 AU
direct	312 Oct 21 j 14:45	8°00'28		opposition	320 Aug 12 j 15:10	19°36'06	-14°-2'-8
				direct	320 Nov 01 j 13:55	18°30'47	
conjunction	313 Jan 28 j 20:13	9°46'54	-11°-28'-28				
minimum elong	313 Jan 28 j 20:01	9°46'53	11°28'29	conjunction	321 Feb 08 j 04:21	20°12'19	-13°-30'00
max. Earth dist.	313 Feb 01 j 00:10	9°52'14	41.45317 AU	minimum elong	321 Feb 08 j 04:11	20°12'18	13°30'01
retrograde	313 May 12 j 06:28	11°37'03		max. Earth dist.	321 Feb 11 j 06:25	20°17'18	43.29408 AU
min. Earth dist.	313 Jul 31 j 09:51	10°32'57	39.61646 AU	retrograde	321 May 22 j 10:41	21°57'48	
opposition	313 Aug 03 j 12:38	10°28'57	-12°-12'-10	min. Earth dist.	321 Aug 11 j 02:36	20°55'05	41.46368 AU
direct	313 Oct 23 j 08:30	9°22'10		opposition	321 Aug 14 j 03:46	20°51'16	-14°-15'-36
				direct	321 Nov 03 j 03:55	19°46'11	
conjunction	314 Jan 30 j 10:22	11°07'57	-11°-45'-32				
minimum elong	314 Jan 30 j 10:09	11°07'56	11°45'32	conjunction	322 Feb 09 j 16:04	21°27'11	-13°-42'-48
max. Earth dist.	314 Feb 02 j 13:16	11°13'12	41.69310 AU	minimum elong	322 Feb 09 j 15:55	21°27'11	13°42'48
retrograde	314 May 13 j 18:36	12°57'30		max. Earth dist.	322 Feb 12 j 17:15	21°32'05	43.51499 AU
min. Earth dist.	314 Aug 02 j 00:29	11°53'38	39.85663 AU	retrograde	322 May 24 j 00:37	23°12'12	
opposition	314 Aug 05 j 03:42	11°49'37	-12°-29'-35	min. Earth dist.	322 Aug 12 j 15:24	22°09'40	41.68537 AU
direct	314 Oct 25 j 01:22	10°43'04		opposition	322 Aug 15 j 16:25	22°05'53	-14°-28'-31
				direct	322 Nov 04 j 14:45	21°01'01	
conjunction	315 Feb 01 j 00:01	12°28'12	-12°-2'-4				
minimum elong	315 Jan 31 j 23:49	12°28'11	12°02'05	conjunction	323 Feb 11 j 03:38	22°41'32	-13°-55'-5
max. Earth dist.	315 Feb 04 j 02:33	12°33'23	41.92935 AU	minimum elong	323 Feb 11 j 03:28	22°41'31	13°55'07
retrograde	315 May 15 j 08:27	14°17'09		max. Earth dist.	323 Feb 14 j 05:37	22°46'27	43.73356 AU
min. Earth dist.	315 Aug 03 j 16:25	13°13'24	40.09335 AU	retrograde	323 May 25 j 13:01	24°26'03	
opposition	315 Aug 06 j 18:36	13°09'27	-12°-46'-26	min. Earth dist.	323 Aug 14 j 04:52	23°23'41	41.90426 AU
direct	315 Oct 26 j 16:38	12°03'07		opposition	323 Aug 17 j 04:45	23°19'58	-14°-40'-55
				direct	323 Nov 06 j 02:20	22°15'20	
conjunction	316 Feb 02 j 13:35	13°47'36	-12°-18'-4				
minimum elong	316 Feb 02 j 13:23	13°47'35	12°18'04	conjunction	324 Feb 12 j 15:05	23°55'22	-14°-6'-54
max. Earth dist.	316 Feb 05 j 16:23	13°52'46	42.16237 AU	minimum elong	324 Feb 12 j 14:57	23°55'21	14°06'55
	316 Mar 21 j 11:08	15°		max. Earth dist.	324 Feb 15 j 15:32	24°00'10	43.94917 AU
retrograde	316 May 15 j 21:24	15°35'56		retrograde	324 May 26 j 02:07	25°39'25	
	316 Jul 12 j 12:22	15°		min. Earth dist.	324 Aug 14 j 16:31	24°37'16	42.11989 AU
min. Earth dist.	316 Aug 04 j 06:58	14°32'20	40.32686 AU	opposition	324 Aug 17 j 16:38	24°33'33	-14°-52'-49
opposition	316 Aug 07 j 08:50	14°28'25	-13°-2'-43	direct	324 Nov 06 j 12:32	23°29'08	
direct	316 Oct 27 j 07:51	13°22'17					
	317 Jan 30 j 09:19	15°		conjunction	325 Feb 13 j 02:25	25°08'42	-14°-18'-15
				minimum elong	325 Feb 13 j 02:15	25°08'42	14°18'16
conjunction	317 Feb 03 j 02:39	15°06'08	-12°-33'-32	max. Earth dist.	325 Feb 16 j 02:48	25°13'29	44.16108 AU
minimum elong	317 Feb 03 j 02:28	15°06'07	12°33'34	retrograde	325 May 27 j 11:56	26°52'18	
max. Earth dist.	317 Feb 06 j 04:15	15°11'11	42.39251 AU	min. Earth dist.	325 Aug 16 j 06:17	25°50'15	42.33153 AU
retrograde	317 May 17 j 13:21	16°53'51		opposition	325 Aug 19 j 04:31	25°46'38	-15°-4'-14
min. Earth dist.	317 Aug 05 j 20:47	15°50'26	40.55793 AU	direct	325 Nov 08 j 01:18	24°42'27	
opposition	317 Aug 08 j 22:52	15°46'31	-13°-18'-26				
	317 Sep 18 j 12:35	15°		conjunction	326 Feb 14 j 13:29	26°21'32	-14°-29'-9
direct	317 Oct 28 j 19:10	14°40'34		minimum elong	326 Feb 14 j 13:21	26°21'32	14°29'10
	317 Dec 07 j 03:03	15°		max. Earth dist.	326 Feb 17 j 13:04	26°26'15	44.36892 AU
				retrograde	326 May 28 j 20:31	28°04'41	
conjunction	318 Feb 04 j 15:26	16°23'49	-12°-48'-27	min. Earth dist.	326 Aug 17 j 17:50	27°02'49	42.53875 AU
minimum elong	318 Feb 04 j 15:15	16°23'48	12°48'28	opposition	326 Aug 20 j 16:04	26°59'12	-15°-15'-12
max. Earth dist.	318 Feb 07 j 18:00	16°28'54	42.62041 AU	direct	326 Nov 09 j 15:30	25°55'12	
retrograde	318 May 19 j 02:01	18°10'56					
min. Earth dist.	318 Aug 07 j 11:34	17°07'38	40.78689 AU	conjunction	327 Feb 16 j 00:19	27°33'49	-14°-39'-36
opposition	318 Aug 10 j 12:37	17°03'48	-13°-33'-34	minimum elong	327 Feb 16 j 00:10	27°33'49	14°39'37
direct	318 Oct 30 j 09:00	15°58'03		max. Earth dist.	327 Feb 18 j 22:33	27°38'25	44.57234 AU

retrograde	327 May 30 j 08:55	29° \approx 16'30		minimum elong	335 Feb 25 j 07:10	6° \times 51'41	15°47'28
min. Earth dist.	327 Aug 19 j 06:17	28° \approx 14'44	42.74174 AU	max. Earth dist.	335 Feb 28 j 02:30	6° \times 55'56	46.08811 AU
opposition	327 Aug 22 j 03:28	28° \approx 11'12	-15°-25'-43	retrograde	335 Jun 08 j 17:10	8° \times 30'59	
direct	327 Nov 11 j 02:26	27° \approx 07'23		min. Earth dist.	335 Aug 28 j 20:35	7° \times 30'13	44.25710 AU
				opposition	335 Aug 31 j 12:47	7° \times 27'00	-16°-33'-16
conjunction	328 Feb 17 j 11:02	28° \approx 45'31	-14°-49'-37	direct	335 Nov 20 j 10:16	6° \times 24'32	
minimum elong	328 Feb 17 j 10:55	28° \approx 45'31	14°49'39				
max. Earth dist.	328 Feb 20 j 09:29	28° \approx 50'06	44.77169 AU	conjunction	336 Feb 26 j 16:25	7° \times 59'21	-15°-54'-1
	328 Apr 10 j 23:05	0° \times		minimum elong	336 Feb 26 j 16:20	7° \times 59'20	15°54'02
retrograde	328 May 30 j 19:30	0° \times 27'44		max. Earth dist.	336 Feb 29 j 10:26	8° \times 03'30	46.26559 AU
	328 Jul 21 j 00:30	30° \times		retrograde	336 Jun 09 j 00:40	9° \times 38'16	
min. Earth dist.	328 Aug 19 j 18:24	29° \approx 26'04	42.94061 AU	min. Earth dist.	336 Aug 29 j 05:46	8° \times 37'41	44.43366 AU
opposition	328 Aug 22 j 14:28	29° \approx 22'36	-15°-35'-46	opposition	336 Aug 31 j 22:00	8° \times 34'28	-16°-39'-44
direct	328 Nov 11 j 13:47	28° \approx 18'56		direct	336 Nov 20 j 20:08	7° \times 32'10	
conjunction	329 Feb 17 j 21:22	29° \approx 56'36	-14°-59'-12	conjunction	337 Feb 27 j 01:26	9° \times 06'38	-16°00'-12
minimum elong	329 Feb 17 j 21:14	29° \approx 56'36	14°59'13	minimum elong	337 Feb 27 j 01:23	9° \times 06'38	16°00'13
	329 Feb 20 j 01:50	0° \times		max. Earth dist.	337 Mar 01 j 18:25	9° \times 10'43	46.43891 AU
max. Earth dist.	329 Feb 20 j 18:12	0° \times 01'04	44.96733 AU	retrograde	337 Jun 10 j 08:18	10° \times 45'12	
retrograde	329 Jun 01 j 07:31	1° \times 38'21		min. Earth dist.	337 Aug 30 j 16:38	9° \times 44'41	44.60588 AU
min. Earth dist.	329 Aug 21 j 04:51	0° \times 36'50	43.13619 AU	opposition	337 Sep 02 j 07:08	9° \times 41'34	-16°-45'-50
opposition	329 Aug 24 j 01:05	0° \times 33'22	-15°-45'-21	direct	337 Nov 22 j 06:32	8° \times 39'26	
	329 Sep 21 j 17:39	30° \times					
direct	329 Nov 12 j 22:23	29° \approx 29'52		conjunction	338 Feb 28 j 10:29	10° \times 13'33	-16°-6'-1
	330 Jan 02 j 14:53	0° \times		minimum elong	338 Feb 28 j 10:25	10° \times 13'32	16°06'02
				max. Earth dist.	338 Mar 03 j 03:00	10° \times 17'35	46.60777 AU
conjunction	330 Feb 19 j 07:31	1° \times 07'05	-15°-8'-21	retrograde	338 Jun 11 j 15:42	11° \times 51'45	
minimum elong	330 Feb 19 j 07:25	1° \times 07'04	15°08'23	min. Earth dist.	338 Sep 01 j 02:27	10° \times 51'20	44.77318 AU
max. Earth dist.	330 Feb 22 j 04:49	1° \times 11'33	45.15994 AU	opposition	338 Sep 03 j 16:05	10° \times 48'16	-16°-51'-33
retrograde	330 Jun 02 j 16:27	2° \times 48'22		direct	338 Nov 23 j 17:27	9° \times 46'17	
min. Earth dist.	330 Aug 22 j 16:50	1° \times 46'56	43.32899 AU				
opposition	330 Aug 25 j 11:39	1° \times 43'32	-15°-54'-29	conjunction	339 Mar 01 j 19:08	11° \times 20'01	-16°-11'-30
direct	330 Nov 14 j 09:24	0° \times 40'12		minimum elong	339 Mar 01 j 19:06	11° \times 20'01	16°11'30
				max. Earth dist.	339 Mar 04 j 09:39	11° \times 23'55	46.77171 AU
conjunction	331 Feb 20 j 17:21	2° \times 16'58	-15°-17'-3	retrograde	339 Jun 13 j 02:25	12° \times 57'52	
minimum elong	331 Feb 20 j 17:15	2° \times 16'58	15°17'03	min. Earth dist.	339 Sep 02 j 12:06	11° \times 57'32	44.93562 AU
max. Earth dist.	331 Feb 23 j 13:54	2° \times 21'23	45.35019 AU	opposition	339 Sep 05 j 00:57	11° \times 54'31	-16°-56'-55
retrograde	331 Jun 04 j 00:02	3° \times 57'50		direct	339 Nov 25 j 01:05	10° \times 52'40	
min. Earth dist.	331 Aug 24 j 02:30	2° \times 56'34	43.51940 AU				
opposition	331 Aug 26 j 21:50	2° \times 53'09	-16°-3'-8	conjunction	340 Mar 02 j 03:52	12° \times 26'03	-16°-16'-37
direct	331 Nov 15 j 20:40	1° \times 49'58		minimum elong	340 Mar 02 j 03:48	12° \times 26'02	16°16'38
				max. Earth dist.	340 Mar 04 j 18:20	12° \times 29'55	46.93082 AU
conjunction	332 Feb 22 j 03:05	3° \times 26'20	-15°-25'-18	retrograde	340 Jun 13 j 11:31	14° \times 03'31	
minimum elong	332 Feb 22 j 02:59	3° \times 26'19	15°25'19	min. Earth dist.	340 Sep 02 j 22:25	13° \times 03'13	45.09329 AU
max. Earth dist.	332 Feb 24 j 23:02	3° \times 30'41	45.53813 AU	opposition	340 Sep 05 j 09:25	13° \times 00'18	-17°-1'-56
retrograde	332 Jun 04 j 09:15	5° \times 06'47		direct	340 Nov 25 j 09:02	11° \times 58'33	
min. Earth dist.	332 Aug 24 j 13:34	4° \times 05'37	43.70766 AU				
opposition	332 Aug 27 j 07:50	4° \times 02'16	-16°-11'-20	conjunction	341 Mar 03 j 12:18	13° \times 31'35	-16°-21'-23
direct	332 Nov 16 j 07:59	2° \times 59'16		minimum elong	341 Mar 03 j 12:17	13° \times 31'35	16°21'25
				max. Earth dist.	341 Mar 06 j 01:09	13° \times 35'21	47.08564 AU
conjunction	333 Feb 22 j 12:44	4° \times 35'12	-15°-33'-6	retrograde	341 Jun 14 j 20:10	15° \times 08'41	
minimum elong	333 Feb 22 j 12:39	4° \times 35'12	15°33'06	min. Earth dist.	341 Sep 04 j 06:36	14° \times 08'30	45.24691 AU
max. Earth dist.	333 Feb 25 j 09:05	4° \times 39'34	45.72398 AU	opposition	341 Sep 06 j 17:43	14° \times 05'35	-17°-6'-34
retrograde	333 Jun 05 j 18:26	6° \times 15'16		direct	341 Nov 26 j 16:08	13° \times 03'57	
min. Earth dist.	333 Aug 25 j 23:44	5° \times 14'14	43.89350 AU				
opposition	333 Aug 28 j 17:36	5° \times 10'55	-16°-19'-5	conjunction	342 Mar 04 j 20:21	14° \times 36'39	-16°-25'-48
direct	333 Nov 17 j 19:04	4° \times 08'05		minimum elong	342 Mar 04 j 20:18	14° \times 36'39	16°25'49
				max. Earth dist.	342 Mar 07 j 08:36	14° \times 40'21	47.23663 AU
conjunction	334 Feb 23 j 21:56	5° \times 43'38	-15°-40'-29	retrograde	342 Jun 16 j 02:27	16° \times 13'25	
minimum elong	334 Feb 23 j 21:50	5° \times 43'38	15°40'30	min. Earth dist.	342 Sep 05 j 16:33	15° \times 13'15	45.39708 AU
max. Earth dist.	334 Feb 26 j 16:47	5° \times 47'53	45.90741 AU	opposition	342 Sep 08 j 02:02	15° \times 10'25	-17°-10'-50
retrograde	334 Jun 07 j 07:18	7° \times 23'19		direct	342 Nov 28 j 01:55	14° \times 08'55	
min. Earth dist.	334 Aug 27 j 09:24	6° \times 22'27	44.07685 AU				
opposition	334 Aug 30 j 03:18	6° \times 19'09	-16°-26'-23	conjunction	343 Mar 06 j 04:31	15° \times 41'17	-16°-29'-51
direct	334 Nov 19 j 01:30	5° \times 16'30		minimum elong	343 Mar 06 j 04:30	15° \times 41'17	16°29'53
				max. Earth dist.	343 Mar 08 j 16:43	15° \times 44'58	47.38457 AU
conjunction	335 Feb 25 j 07:14	6° \times 51'41	-15°-47'-27	retrograde	343 Jun 17 j 07:54	17° \times 17'43	

min. Earth dist.	343 Sep 07 j 00:37	16° 17 41	45.54417 AU	conjunction	352 Mar 15 j 00:21	25° 10 10	-16°-50'-54
opposition	343 Sep 09 j 09:54	16° 14 51	-17°-14'-43	minimum elong	352 Mar 15 j 00:24	25° 10 10	16°50'55
direct	343 Nov 29 j 12:38	15° 13 28		max. Earth dist.	352 Mar 17 j 03:23	25° 13 13	48.56470 AU
				retrograde	352 Jun 26 j 07:27	26° 44 08	
conjunction	344 Mar 06 j 12:24	16° 45 32	-16°-33'-32	min. Earth dist.	352 Sep 16 j 03:56	25° 44 46	46.70959 AU
minimum elong	344 Mar 06 j 12:22	16° 45 32	16°33'33	opposition	352 Sep 18 j 03:31	25° 42 28	-17°-34'-2
max. Earth dist.	344 Mar 08 j 22:55	16° 49 07	47.52963 AU	direct	352 Dec 08 j 02:15	24° 42 12	
retrograde	344 Jun 17 j 18:15	18° 21 40					
min. Earth dist.	344 Sep 07 j 09:00	17° 21 43	45.68854 AU	conjunction	353 Mar 16 j 07:23	26° 11 56	-16°-51'-43
opposition	344 Sep 09 j 17:47	17° 18 56	-17°-18'-14	minimum elong	353 Mar 16 j 07:25	26° 11 56	16°51'44
direct	344 Nov 29 j 19:04	16° 17 41		max. Earth dist.	353 Mar 18 j 09:39	26° 14 55	48.67316 AU
				retrograde	353 Jun 27 j 10:01	27° 45 36	
conjunction	345 Mar 07 j 20:14	17° 49 27	-16°-36'-52	min. Earth dist.	353 Sep 17 j 10:43	26° 46 18	46.81593 AU
minimum elong	345 Mar 07 j 20:14	17° 49 27	16°36'53	opposition	353 Sep 19 j 09:59	26° 44 01	-17°-34'-38
max. Earth dist.	345 Mar 10 j 07:10	17° 53 03	47.67195 AU	direct	353 Dec 09 j 12:19	25° 43 49	
retrograde	345 Jun 19 j 02:50	19° 25 18					
min. Earth dist.	345 Sep 08 j 18:00	18° 25 26	45.82999 AU	conjunction	354 Mar 17 j 14:10	27° 13 17	-16°-52'-15
opposition	345 Sep 11 j 01:23	18° 22 43	-17°-21'-22	minimum elong	354 Mar 17 j 14:14	27° 13 17	16°52'16
direct	345 Dec 01 j 02:18	17° 21 37		max. Earth dist.	354 Mar 19 j 14:37	27° 16 10	48.77746 AU
				retrograde	354 Jun 28 j 16:13	28° 46 41	
conjunction	346 Mar 09 j 03:52	18° 53 06	-16°-39'-50	min. Earth dist.	354 Sep 18 j 18:20	27° 47 24	46.91857 AU
minimum elong	346 Mar 09 j 03:52	18° 53 06	16°39'50	opposition	354 Sep 20 j 16:30	27° 45 10	-17°-34'-55
max. Earth dist.	346 Mar 11 j 13:23	18° 56 36	47.81157 AU	direct	354 Dec 10 j 20:10	26° 45 02	
retrograde	346 Jun 20 j 11:00	20° 28 40					
min. Earth dist.	346 Sep 10 j 01:14	19° 28 58	45.96857 AU	conjunction	355 Mar 18 j 20:55	28° 14 15	-16°-52'-28
opposition	346 Sep 12 j 08:53	19° 26 15	-17°-24'-9	minimum elong	355 Mar 18 j 20:58	28° 14 15	16°52'29
direct	346 Dec 02 j 07:48	18° 25 17		max. Earth dist.	355 Mar 20 j 21:36	28° 17 08	48.87830 AU
				retrograde	355 Jun 29 j 22:27	29° 47 24	
conjunction	347 Mar 10 j 11:22	19° 56 32	-16°-42'-27	min. Earth dist.	355 Sep 20 j 01:52	28° 48 07	47.01778 AU
minimum elong	347 Mar 10 j 11:22	19° 56 32	16°42'29	opposition	355 Sep 21 j 22:49	28° 45 57	-17°-34'-54
max. Earth dist.	347 Mar 12 j 20:20	19° 59 59	47.94801 AU	direct	355 Dec 12 j 03:48	27° 45 53	
retrograde	347 Jun 21 j 17:19	21° 31 49					
min. Earth dist.	347 Sep 11 j 10:35	20° 32 10	46.10374 AU	conjunction	356 Mar 19 j 03:34	29° 14 52	-16°-52'-23
opposition	347 Sep 13 j 16:23	20° 29 33	-17°-26'-35	minimum elong	356 Mar 19 j 03:38	29° 14 52	16°52'24
direct	347 Dec 03 j 15:48	19° 28 45		max. Earth dist.	356 Mar 21 j 02:37	29° 17 38	48.97610 AU
					356 Apr 21 j 09:45	0° 0 0	
conjunction	348 Mar 10 j 19:00	20° 59 44	-16°-44'-45	retrograde	356 Jun 30 j 06:51	0° 47 46	
minimum elong	348 Mar 10 j 19:01	20° 59 44	16°44'45		356 Sep 10 j 07:44	30° 48 34	
max. Earth dist.	348 Mar 13 j 03:23	21° 03 09	48.08092 AU	min. Earth dist.	356 Sep 20 j 07:54	29° 48 34	47.11410 AU
retrograde	348 Jun 21 j 22:14	22° 34 46		opposition	356 Sep 22 j 04:50	29° 46 24	-17°-34'-33
min. Earth dist.	348 Sep 11 j 18:09	21° 35 15	46.23486 AU	direct	356 Dec 12 j 07:48	28° 46 24	
opposition	348 Sep 13 j 23:26	21° 32 39	-17°-28'-40		357 Mar 09 j 15:17	0° 0 0	
direct	348 Dec 04 j 01:20	20° 31 59					
				conjunction	357 Mar 20 j 10:05	0° 15 10	-16°-51'-59
conjunction	349 Mar 12 j 02:26	22° 02 44	-16°-46'-43	minimum elong	357 Mar 20 j 10:09	0° 15 11	16°51'59
minimum elong	349 Mar 12 j 02:26	22° 02 44	16°46'44	max. Earth dist.	357 Mar 22 j 08:40	0° 17 55	49.07099 AU
max. Earth dist.	349 Mar 14 j 08:49	22° 06 01	48.20944 AU	retrograde	357 Jul 01 j 13:25	1° 47 50	
retrograde	349 Jun 23 j 06:46	23° 37 32		min. Earth dist.	357 Sep 21 j 15:44	0° 48 39	47.20755 AU
min. Earth dist.	349 Sep 13 j 02:45	22° 38 05	46.36142 AU	opposition	357 Sep 23 j 11:01	0° 46 34	-17°-33'-53
opposition	349 Sep 15 j 06:41	22° 35 33	-17°-30'-27		357 Nov 08 j 13:50	30° 48 34	
direct	349 Dec 05 j 08:31	21° 35 01		direct	357 Dec 13 j 13:05	29° 46 40	
					358 Jan 17 j 04:19	0° 0 0	
conjunction	350 Mar 13 j 09:47	23° 05 31	-16°-48'-24				
minimum elong	350 Mar 13 j 09:50	23° 05 31	16°48'25	conjunction	358 Mar 21 j 16:25	1° 15 14	-16°-51'-16
max. Earth dist.	350 Mar 15 j 16:01	23° 08 46	48.33309 AU	minimum elong	358 Mar 21 j 16:30	1° 15 14	16°51'17
retrograde	350 Jun 24 j 15:15	24° 40 03		max. Earth dist.	358 Mar 23 j 14:34	1° 17 57	49.16321 AU
min. Earth dist.	350 Sep 14 j 11:33	23° 40 38	46.48269 AU	retrograde	358 Jul 02 j 17:20	2° 47 41	
opposition	350 Sep 16 j 13:49	23° 38 12	-17°-31'-56	min. Earth dist.	358 Sep 22 j 21:41	1° 48 36	47.29806 AU
direct	350 Dec 06 j 15:34	22° 37 46		opposition	358 Sep 24 j 16:59	1° 46 31	-17°-32'-54
				direct	358 Dec 14 j 20:08	0° 46 43	
conjunction	351 Mar 14 j 17:08	24° 08 01	-16°-49'-48				
minimum elong	351 Mar 14 j 17:09	24° 08 01	16°49'49	conjunction	359 Mar 22 j 22:45	2° 15 06	-16°-50'-15
max. Earth dist.	351 Mar 16 j 21:06	24° 11 08	48.45154 AU	minimum elong	359 Mar 22 j 22:49	2° 15 07	16°50'16
retrograde	351 Jun 26 j 01:26	25° 42 16		max. Earth dist.	359 Mar 24 j 19:15	2° 17 43	49.25237 AU
min. Earth dist.	351 Sep 15 j 18:50	24° 42 55	46.59870 AU	retrograde	359 Jul 03 j 23:45	3° 47 22	
opposition	351 Sep 17 j 20:39	24° 40 31	-17°-33'-8	min. Earth dist.	359 Sep 24 j 04:54	2° 48 20	47.38543 AU
direct	351 Dec 07 j 19:25	23° 40 11		opposition	359 Sep 25 j 22:53	2° 46 19	-17°-31'-37

direct	359 Dec 16 j 02:37	1°V46'37		minimum elong	368 Mar 31 j 06:01	11°V07'07	16°29'14
				max. Earth dist.	368 Apr 01 j 16:36	11°V09'06	49.85857 AU
conjunction	360 Mar 23 j 05:12	3°V14'50 -16°-48'-57		retrograde	368 Jul 12 j 05:04	12°V37'47	
minimum elong	360 Mar 23 j 05:17	3°V14'51 16°48'59		opposition	368 Oct 03 j 23:44	11°V37'27	-17°-8'00
max. Earth dist.	360 Mar 25 j 01:44	3°V17'27 49.33811 AU		min. Earth dist.	368 Oct 02 j 15:36	11°V38'58	47.96844 AU
retrograde	360 Jul 04 j 05:43	4°V46'56		direct	368 Dec 24 j 03:35	10°V38'20	
min. Earth dist.	360 Sep 24 j 12:01	3°V47'56 47.46888 AU					
opposition	360 Sep 26 j 04:39	3°V45'59 -17°-30'-2		conjunction	369 Apr 01 j 11:28	12°V05'14	-16°-25'-35
direct	360 Dec 16 j 09:47	2°V46'24		minimum elong	369 Apr 01 j 11:36	12°V05'14	16°25'36
				max. Earth dist.	369 Apr 02 j 20:35	12°V07'08	49.90622 AU
conjunction	361 Mar 24 j 11:26	4°V14'28 -16°-47'-22		retrograde	369 Jul 13 j 09:42	13°V35'46	
minimum elong	361 Mar 24 j 11:32	4°V14'28 16°47'23		min. Earth dist.	369 Oct 03 j 22:03	12°V36'57	48.01410 AU
max. Earth dist.	361 Mar 26 j 05:51	4°V16'57 49.41974 AU		opposition	369 Oct 05 j 04:49	12°V35'30	-17°-4'-1
retrograde	361 Jul 05 j 14:58	5°V46'23		direct	369 Dec 25 j 09:46	11°V36'26	
min. Earth dist.	361 Sep 25 j 18:09	4°V47'29 47.54792 AU					
opposition	361 Sep 27 j 10:19	4°V45'34 -17°-28'-11		conjunction	370 Apr 02 j 17:13	13°V03'13	-16°-21'-39
direct	361 Dec 17 j 12:34	3°V46'04		minimum elong	370 Apr 02 j 17:21	13°V03'13	16°21'40
				max. Earth dist.	370 Apr 04 j 02:27	13°V05'07	49.95110 AU
conjunction	362 Mar 25 j 17:45	5°V13'59 -16°-45'-32		retrograde	370 Jul 14 j 13:00	14°V33'38	
minimum elong	362 Mar 25 j 17:51	5°V14'00 16°45'34		min. Earth dist.	370 Oct 05 j 03:47	13°V34'51	48.05675 AU
max. Earth dist.	362 Mar 27 j 11:16	5°V16'24 49.49657 AU		opposition	370 Oct 06 j 09:44	13°V33'26	-16°-59'-45
retrograde	362 Jul 06 j 22:06	6°V45'44		direct	370 Dec 26 j 17:40	12°V34'26	
min. Earth dist.	362 Sep 27 j 02:16	5°V46'49 47.62192 AU					
opposition	362 Sep 28 j 16:03	5°V45'01 -17°-26'-5		conjunction	371 Apr 03 j 22:47	14°V01'06	-16°-17'-27
direct	362 Dec 18 j 16:42	4°V45'36		minimum elong	371 Apr 03 j 22:55	14°V01'07	16°17'29
				max. Earth dist.	371 Apr 05 j 06:09	14°V02'54	49.99302 AU
conjunction	363 Mar 27 j 00:02	6°V13'22 -16°-43'-27		retrograde	371 Jul 15 j 21:30	15°V31'24	
minimum elong	363 Mar 27 j 00:09	6°V13'23 16°43'28		min. Earth dist.	371 Oct 06 j 09:07	14°V32'41	48.09622 AU
max. Earth dist.	363 Mar 28 j 16:23	6°V15'43 49.56838 AU		opposition	371 Oct 07 j 14:38	14°V31'17	-16°-55'-13
retrograde	363 Jul 08 j 01:04	7°V44'56		direct	371 Dec 27 j 20:41	13°V32'21	
min. Earth dist.	363 Sep 28 j 08:13	6°V46'05 47.69060 AU					
opposition	363 Sep 29 j 21:34	6°V44'18 -17°-23'-44		conjunction	372 Apr 04 j 04:30	14°V58'56	-16°-13'00
direct	363 Dec 20 j 00:42	5°V44'57		minimum elong	372 Apr 04 j 04:39	14°V58'57	16°13'00
				max. Earth dist.	372 Apr 05 j 11:14	15°V00'42	50.03134 AU
conjunction	364 Mar 27 j 06:13	7°V12'34 -16°-41'-7		retrograde	372 Jul 16 j 05:36	16°V29'08	
minimum elong	364 Mar 27 j 06:18	7°V12'34 16°41'08		opposition	372 Oct 07 j 19:27	15°V29'05	-16°-50'-25
max. Earth dist.	364 Mar 28 j 20:15	7°V14'47 49.63487 AU		min. Earth dist.	372 Oct 06 j 16:05	15°V30'23	48.13181 AU
retrograde	364 Jul 08 j 05:41	8°V43'57		direct	372 Dec 27 j 23:09	14°V30'13	
min. Earth dist.	364 Sep 28 j 15:25	7°V45'04 47.75423 AU					
opposition	364 Sep 30 j 02:59	7°V43'23 -17°-21'-7		conjunction	373 Apr 05 j 10:13	15°V56'44	-16°-8'-17
direct	364 Dec 20 j 08:00	6°V44'05		minimum elong	373 Apr 05 j 10:21	15°V56'44	16°08'19
				max. Earth dist.	373 Apr 06 j 15:53	15°V58'25	50.06565 AU
conjunction	365 Mar 28 j 12:21	8°V11'33 -16°-38'-33		retrograde	373 Jul 17 j 09:26	17°V26'48	
minimum elong	365 Mar 28 j 12:29	8°V11'33 16°38'34		min. Earth dist.	373 Oct 07 j 21:12	16°V28'07	48.16291 AU
max. Earth dist.	365 Mar 30 j 02:17	8°V13'45 49.69658 AU		opposition	373 Oct 09 j 00:13	16°V26'51	-16°-45'-22
retrograde	365 Jul 09 j 10:44	9°V42'45		direct	373 Dec 29 j 04:26	15°V28'01	
min. Earth dist.	365 Sep 29 j 22:02	8°V43'52 47.81319 AU					
opposition	365 Oct 01 j 08:20	8°V42'14 -17°-18'-15		conjunction	374 Apr 06 j 15:43	16°V54'27	-16°-3'-21
direct	365 Dec 21 j 15:14	7°V42'59		minimum elong	374 Apr 06 j 15:53	16°V54'28	16°03'21
				max. Earth dist.	374 Apr 07 j 19:10	16°V56'02	50.09507 AU
conjunction	366 Mar 29 j 18:06	9°V10'17 -16°-35'-43		retrograde	374 Jul 18 j 13:21	18°V24'26	
minimum elong	366 Mar 29 j 18:12	9°V10'17 16°35'43		min. Earth dist.	374 Oct 09 j 04:06	17°V25'42	48.18893 AU
max. Earth dist.	366 Mar 31 j 06:06	9°V12'22 49.75410 AU		opposition	374 Oct 10 j 05:10	17°V24'31	-16°-40'-6
retrograde	366 Jul 10 j 18:46	10°V41'19		direct	374 Dec 30 j 10:38	16°V25'44	
min. Earth dist.	366 Oct 01 j 03:39	9°V42'28 47.86831 AU					
opposition	366 Oct 02 j 13:36	9°V40'51 -17°-15'-7		conjunction	375 Apr 07 j 21:34	17°V52'06	-15°-58'-11
direct	366 Dec 22 j 18:45	8°V41'39		minimum elong	375 Apr 07 j 21:42	17°V52'06	15°58'12
				max. Earth dist.	375 Apr 09 j 00:32	17°V53'38	50.11920 AU
conjunction	367 Mar 31 j 00:01	10°V08'48 -16°-32'-36		retrograde	375 Jul 19 j 16:39	19°V21'58	
minimum elong	367 Mar 31 j 00:09	10°V08'48 16°32'38		min. Earth dist.	375 Oct 10 j 10:16	18°V23'12	48.20936 AU
max. Earth dist.	367 Apr 01 j 11:27	10°V10'50 49.80788 AU		opposition	375 Oct 11 j 09:50	18°V22'06	-16°-34'-36
retrograde	367 Jul 12 j 01:14	11°V39'39		direct	375 Dec 31 j 18:16	17°V23'20	
min. Earth dist.	367 Oct 02 j 10:39	10°V40'46 47.91993 AU					
opposition	367 Oct 03 j 18:44	10°V39'15 -17°-11'-42		conjunction	376 Apr 08 j 03:13	18°V49'36	-15°-52'-49
direct	367 Dec 23 j 22:28	9°V40'05		minimum elong	376 Apr 08 j 03:23	18°V49'37	15°52'49
				max. Earth dist.	376 Apr 09 j 03:43	18°V51'00	50.13791 AU
conjunction	368 Mar 31 j 05:54	11°V07'06 -16°-29'-14		retrograde	376 Jul 19 j 23:35	20°V19'21	

opposition	376 Oct 11 j 14:34	19°♈19'31	-16°-28'-53	conjunction	385 Apr 17 j 03:55	27°♈22'12	-14°-53'-36
min. Earth dist.	376 Oct 10 j 15:49	19°♈20'35	48.22452 AU	minimum elong	385 Apr 17 j 04:07	27°♈22'13	14°53'37
direct	376 Dec 31 j 22:12	18°♈20'46		max. Earth dist.	385 Apr 17 j 19:10	27°♈23'04	50.12618 AU
				retrograde	385 Jul 28 j 19:01	28°♈51'23	
conjunction	377 Apr 09 j 08:42	19°♈46'56	-15°-47'-13	opposition	385 Oct 20 j 06:32	27°♈51'52	-15°-26'-11
minimum elong	377 Apr 09 j 08:50	19°♈46'57	15°47'14	min. Earth dist.	385 Oct 19 j 17:55	27°♈52'28	48.18617 AU
max. Earth dist.	377 Apr 10 j 08:12	19°♈48'17	50.15139 AU	direct	386 Jan 09 j 17:18	26°♈53'15	
retrograde	377 Jul 21 j 05:46	21°♈16'35					
opposition	377 Oct 12 j 19:14	20°♈16'46	-16°-22'-55	conjunction	386 Apr 18 j 09:22	28°♈19'14	-14°-45'-49
min. Earth dist.	377 Oct 11 j 22:37	20°♈17'44	48.23470 AU	minimum elong	386 Apr 18 j 09:32	28°♈19'14	14°45'51
direct	378 Jan 02 j 02:02	19°♈18'01		max. Earth dist.	386 Apr 18 j 22:09	28°♈19'57	50.10619 AU
				retrograde	386 Jul 30 j 01:54	29°♈48'24	
conjunction	378 Apr 10 j 14:13	20°♈44'07	-15°-41'-22	opposition	386 Oct 21 j 10:52	28°♈48'55	-15°-18'00
minimum elong	378 Apr 10 j 14:24	20°♈44'07	15°41'24	min. Earth dist.	386 Oct 20 j 23:16	28°♈49'28	48.16241 AU
max. Earth dist.	378 Apr 11 j 12:47	20°♈45'23	50.16043 AU	direct	387 Jan 10 j 20:55	27°♈50'18	
retrograde	378 Jul 22 j 10:20	22°♈13'37					
opposition	378 Oct 13 j 23:40	21°♈13'50	-16°-16'-44	conjunction	387 Apr 19 j 14:57	29°♈16'17	-14°-37'-49
min. Earth dist.	378 Oct 13 j 03:16	21°♈14'47	48.24063 AU	minimum elong	387 Apr 19 j 15:09	29°♈16'18	14°37'50
direct	379 Jan 03 j 06:16	20°♈15'04		max. Earth dist.	387 Apr 20 j 02:32	29°♈16'57	50.08090 AU
					387 May 23 j 05:25	0°♈	
conjunction	379 Apr 11 j 19:36	21°♈41'07	-15°-35'-18	retrograde	387 Jul 31 j 08:47	0°♈45'27	
minimum elong	379 Apr 11 j 19:45	21°♈41'08	15°35'19		387 Oct 10 j 02:05	30°♈	
max. Earth dist.	379 Apr 12 j 16:14	21°♈42'17	50.16540 AU	opposition	387 Oct 22 j 15:21	29°♈45'58	-15°-9'-35
retrograde	379 Jul 23 j 14:48	23°♈10'32		min. Earth dist.	387 Oct 22 j 06:01	29°♈46'24	48.13315 AU
min. Earth dist.	379 Oct 14 j 09:33	22°♈11'39	48.24283 AU	direct	388 Jan 12 j 00:19	28°♈47'20	
opposition	379 Oct 15 j 04:13	22°♈10'46	-16°-10'-17		388 Apr 09 j 23:56	0°♈	
direct	380 Jan 04 j 11:32	21°♈12'01					
				conjunction	388 Apr 19 j 20:32	0°♈13'20	-14°-29'-36
conjunction	380 Apr 12 j 01:08	22°♈38'00	-15°-28'-59	minimum elong	388 Apr 19 j 20:42	0°♈13'21	14°29'37
minimum elong	380 Apr 12 j 01:19	22°♈38'01	15°29'00	max. Earth dist.	388 Apr 20 j 06:47	0°♈13'55	50.05029 AU
max. Earth dist.	380 Apr 12 j 21:42	22°♈39'10	50.16685 AU	retrograde	388 Jul 31 j 14:44	1°♈42'26	
retrograde	380 Jul 23 j 17:10	24°♈07'21		opposition	388 Oct 22 j 19:33	0°♈42'58	-15°00'-57
opposition	380 Oct 15 j 08:32	23°♈07'36	-16°-3'-35	min. Earth dist.	388 Oct 22 j 10:44	0°♈43'22	48.09858 AU
min. Earth dist.	380 Oct 14 j 14:39	23°♈08'27	48.24156 AU		388 Dec 04 j 10:11	30°♈	
direct	381 Jan 04 j 18:55	22°♈08'51		direct	389 Jan 12 j 03:24	29°♈44'18	
					389 Feb 19 j 15:25	0°♈	
conjunction	381 Apr 13 j 06:27	23°♈34'48	-15°-22'-24	conjunction	389 Apr 21 j 01:56	1°♈10'18	-14°-21'-11
minimum elong	381 Apr 13 j 06:37	23°♈34'49	15°22'25	minimum elong	389 Apr 21 j 02:08	1°♈10'19	14°21'12
max. Earth dist.	381 Apr 14 j 01:07	23°♈35'52	50.16519 AU	max. Earth dist.	389 Apr 21 j 09:56	1°♈10'45	50.01453 AU
retrograde	381 Jul 25 j 00:23	25°♈04'06		retrograde	389 Aug 01 j 19:21	2°♈39'22	
opposition	381 Oct 16 j 12:58	24°♈04'23	-15°-56'-36	opposition	389 Oct 23 j 23:58	1°♈39'52	-14°-52'-6
min. Earth dist.	381 Oct 15 j 19:29	24°♈05'12	48.23733 AU	min. Earth dist.	389 Oct 23 j 17:06	1°♈40'11	48.05925 AU
direct	382 Jan 05 j 22:10	23°♈05'40		direct	390 Jan 13 j 07:49	0°♈41'10	
conjunction	382 Apr 14 j 11:41	24°♈31'35	-15°-15'-35	conjunction	390 Apr 22 j 07:20	2°♈07'10	-14°-12'-32
minimum elong	382 Apr 14 j 11:52	24°♈31'36	15°15'36	minimum elong	390 Apr 22 j 07:30	2°♈07'11	14°12'33
max. Earth dist.	382 Apr 15 j 05:55	24°♈32'37	50.16047 AU	max. Earth dist.	390 Apr 22 j 15:05	2°♈07'36	49.97430 AU
retrograde	382 Jul 26 j 08:21	26°♈00'50		retrograde	390 Aug 02 j 20:49	3°♈36'13	
opposition	382 Oct 17 j 17:30	25°♈01'10	-15°-49'-23	opposition	390 Oct 25 j 04:14	2°♈36'40	-14°-43'-1
min. Earth dist.	382 Oct 17 j 01:49	25°♈01'54	48.22997 AU	min. Earth dist.	390 Oct 24 j 22:16	2°♈36'57	48.01557 AU
direct	383 Jan 07 j 00:10	24°♈02'28		direct	391 Jan 14 j 15:35	1°♈37'55	
conjunction	383 Apr 15 j 17:08	25°♈28'24	-15°-8'-30	conjunction	391 Apr 23 j 12:44	3°♈03'56	-14°-3'-39
minimum elong	383 Apr 15 j 17:19	25°♈28'24	15°08'30	minimum elong	391 Apr 23 j 12:56	3°♈03'56	14°03'40
max. Earth dist.	383 Apr 16 j 10:29	25°♈29'22	50.15276 AU	max. Earth dist.	391 Apr 23 j 18:28	3°♈04'15	49.93012 AU
retrograde	383 Jul 27 j 12:53	26°♈57'36		retrograde	391 Aug 04 j 01:49	4°♈32'57	
opposition	383 Oct 18 j 21:43	25°♈57'59	-15°-41'-53	opposition	391 Oct 26 j 08:23	3°♈33'23	-14°-33'-41
min. Earth dist.	383 Oct 18 j 06:04	25°♈58'43	48.21936 AU	min. Earth dist.	391 Oct 26 j 03:10	3°♈33'38	47.96831 AU
direct	384 Jan 08 j 03:52	24°♈59'19		direct	392 Jan 15 j 20:50	2°♈34'35	
conjunction	384 Apr 15 j 22:31	26°♈25'15	-15°-1'-10	conjunction	392 Apr 23 j 18:12	4°♈00'36	-13°-54'-32
minimum elong	384 Apr 15 j 22:41	26°♈25'16	15°01'12	minimum elong	392 Apr 23 j 18:23	4°♈00'37	13°54'32
max. Earth dist.	384 Apr 16 j 13:54	26°♈26'08	50.14149 AU	max. Earth dist.	392 Apr 23 j 23:14	4°♈00'53	49.88244 AU
retrograde	384 Jul 27 j 16:36	27°♈54'27		retrograde	392 Aug 04 j 08:53	5°♈29'37	
opposition	384 Oct 19 j 02:10	26°♈54'53	-15°-34'-9	opposition	392 Oct 26 j 12:42	4°♈30'02	-14°-24'-6
min. Earth dist.	384 Oct 18 j 12:26	26°♈55'32	48.20502 AU	min. Earth dist.	392 Oct 26 j 09:13	4°♈30'12	47.91775 AU
direct	385 Jan 08 j 09:36	25°♈56'15					

direct	393 Jan 16 j 00:03	3°♄31'11		minimum elong	401 May 02 j 20:50	12°♄33'51	12°21'33
				max. Earth dist.	401 May 02 j 13:45	12°♄33'26	49.29891 AU
conjunction	393 Apr 24 j 23:28	4°♄57'14 -13°-45'-9		retrograde	401 Aug 13 j 06:34	14°♄03'22	
minimum elong	393 Apr 24 j 23:40	4°♄57'15 13°45'11		opposition	401 Nov 04 j 04:03	13°♄03'40	-12°-46'-38
max. Earth dist.	393 Apr 25 j 03:47	4°♄57'29 49.83184 AU		min. Earth dist.	401 Nov 04 j 10:27	13°♄03'22	47.30284 AU
retrograde	393 Aug 05 j 14:43	6°♄26'15		direct	402 Jan 24 j 18:03	12°♄04'29	
opposition	393 Oct 27 j 16:55	5°♄26'38 -14°-14'-15					
min. Earth dist.	393 Oct 27 j 13:14	5°♄26'49 47.86432 AU		conjunction	402 May 04 j 02:34	13°♄31'28	-12°-10'-4
direct	394 Jan 17 j 02:41	4°♄27'45		minimum elong	402 May 04 j 02:47	13°♄31'29	12°10'05
				max. Earth dist.	402 May 03 j 18:41	13°♄31'01	49.21133 AU
conjunction	394 Apr 26 j 04:50	5°♄53'52 -13°-35'-32			402 Aug 04 j 12:33	15°♄	
minimum elong	394 Apr 26 j 05:01	5°♄53'53 13°35'32		retrograde	402 Aug 14 j 13:38	15°♄01'05	
max. Earth dist.	394 Apr 26 j 07:23	5°♄54'01 49.77841 AU			402 Aug 24 j 14:53	15°♄	
retrograde	394 Aug 06 j 19:16	7°♄22'54		opposition	402 Nov 05 j 08:34	14°♄01'20	-12°-34'-38
opposition	394 Oct 28 j 21:13	6°♄23'17 -14°-4'-9		min. Earth dist.	402 Nov 05 j 16:55	14°♄00'56	47.21168 AU
min. Earth dist.	394 Oct 28 j 19:12	6°♄23'22 47.80819 AU		direct	403 Jan 25 j 21:47	13°♄02'04	
direct	395 Jan 18 j 07:23	5°♄24'22					
				conjunction	403 May 05 j 08:31	14°♄29'10	-11°-58'-22
conjunction	395 Apr 27 j 10:23	6°♄50'33 -13°-25'-39		minimum elong	403 May 05 j 08:42	14°♄29'11	11°58'23
minimum elong	395 Apr 27 j 10:35	6°♄50'34 13°25'41		max. Earth dist.	403 May 04 j 23:35	14°♄28'40	49.11980 AU
max. Earth dist.	395 Apr 27 j 13:00	6°♄50'42 49.72223 AU			403 May 28 j 08:23	15°♄	
retrograde	395 Aug 07 j 21:17	8°♄19'38		retrograde	403 Aug 15 j 21:26	15°♄58'52	
opposition	395 Oct 30 j 01:30	7°♄20'01 -13°-53'-47			403 Nov 05 j 17:28	15°♄	
min. Earth dist.	395 Oct 30 j 00:12	7°♄20'04 47.74898 AU		opposition	403 Nov 06 j 13:03	14°♄59'04	-12°-22'-23
direct	396 Jan 19 j 14:44	6°♄21'04		min. Earth dist.	403 Nov 06 j 21:29	14°♄58'40	47.11676 AU
				direct	404 Jan 26 j 23:41	13°♄59'43	
conjunction	396 Apr 27 j 15:52	7°♄47'22 -13°-15'-32			404 Apr 15 j 13:45	15°♄	
minimum elong	396 Apr 27 j 16:04	7°♄47'22 13°15'32					
max. Earth dist.	396 Apr 27 j 16:24	7°♄47'23 49.66289 AU		conjunction	404 May 05 j 14:23	15°♄26'58	-11°-46'-25
retrograde	396 Aug 08 j 03:27	9°♄16'30		minimum elong	404 May 05 j 14:35	15°♄26'58	11°46'26
opposition	396 Oct 30 j 05:42	8°♄16'53 -13°-43'-10		max. Earth dist.	404 May 05 j 03:33	15°♄26'21	49.02460 AU
min. Earth dist.	396 Oct 30 j 05:11	8°♄16'55 47.68644 AU		retrograde	404 Aug 16 j 02:37	16°♄56'45	
direct	397 Jan 19 j 18:37	7°♄17'56		opposition	404 Nov 06 j 17:39	15°♄56'54	-12°-9'-52
				min. Earth dist.	404 Nov 07 j 03:56	15°♄56'24	47.01854 AU
conjunction	397 Apr 28 j 21:30	8°♄44'20 -13°-5'-11			405 Jan 12 j 00:41	15°♄	
minimum elong	397 Apr 28 j 21:42	8°♄44'20 13°05'12		direct	405 Jan 27 j 04:36	14°♄57'28	
max. Earth dist.	397 Apr 28 j 21:10	8°♄44'19 49.59976 AU			405 Feb 11 j 12:19	15°♄	
retrograde	397 Aug 09 j 10:04	10°♄13'33					
opposition	397 Oct 31 j 10:08	9°♄13'57 -13°-32'-19		conjunction	405 May 06 j 20:25	16°♄24'51	-11°-34'-14
min. Earth dist.	397 Oct 31 j 11:42	9°♄13'53 47.61975 AU		minimum elong	405 May 06 j 20:36	16°♄24'52	11°34'14
direct	398 Jan 20 j 22:15	8°♄14'59		max. Earth dist.	405 May 06 j 09:35	16°♄24'14	48.92638 AU
				retrograde	405 Aug 17 j 04:23	17°♄54'45	
conjunction	398 Apr 30 j 03:10	9°♄41'29 -12°-54'-36		opposition	405 Nov 07 j 22:16	16°♄54'50	-11°-57'-6
minimum elong	398 Apr 30 j 03:23	9°♄41'30 12°54'36		min. Earth dist.	405 Nov 08 j 09:00	16°♄54'20	46.91735 AU
max. Earth dist.	398 Apr 30 j 01:42	9°♄41'24 49.53230 AU		direct	406 Jan 28 j 12:46	15°♄55'20	
retrograde	398 Aug 10 j 16:47	11°♄10'47					
opposition	398 Nov 01 j 14:32	10°♄11'11 -13°-21'-14		conjunction	406 May 08 j 02:17	17°♄22'54	-11°-21'-47
min. Earth dist.	398 Nov 01 j 16:33	10°♄11'06 47.54829 AU		minimum elong	406 May 08 j 02:29	17°♄22'54	11°21'49
direct	399 Jan 22 j 01:19	9°♄12'11		max. Earth dist.	406 May 07 j 13:30	17°♄22'10	48.82539 AU
				retrograde	406 Aug 18 j 09:50	18°♄52'55	
conjunction	399 May 01 j 09:00	10°♄38'49 -12°-43'-47		opposition	406 Nov 09 j 03:00	17°♄52'57	-11°-44'-4
minimum elong	399 May 01 j 09:11	10°♄38'50 12°43'48		min. Earth dist.	406 Nov 09 j 14:25	17°♄52'25	46.81346 AU
max. Earth dist.	399 May 01 j 04:59	10°♄38'36 49.45968 AU		direct	407 Jan 29 j 18:15	16°♄53'22	
retrograde	399 Aug 11 j 22:41	12°♄08'11					
opposition	399 Nov 02 j 19:00	11°♄08'35 -13°-9'-55		conjunction	407 May 09 j 08:30	18°♄21'07	-11°-9'-6
min. Earth dist.	399 Nov 02 j 23:18	11°♄08'22 47.47162 AU		minimum elong	407 May 09 j 08:42	18°♄21'07	11°09'06
direct	400 Jan 23 j 05:20	10°♄09'32		max. Earth dist.	407 May 08 j 19:05	18°♄20'21	48.72149 AU
				retrograde	407 Aug 19 j 16:09	19°♄51'17	
conjunction	400 May 01 j 15:00	11°♄36'17 -12°-32'-46		opposition	407 Nov 10 j 07:45	18°♄51'17	-11°-30'-47
minimum elong	400 May 01 j 15:12	11°♄36'18 12°32'47		min. Earth dist.	407 Nov 10 j 20:53	18°♄50'40	46.70654 AU
max. Earth dist.	400 May 01 j 10:25	11°♄36'01 49.38183 AU		direct	408 Jan 30 j 23:06	17°♄51'39	
retrograde	400 Aug 12 j 01:29	13°♄05'44					
opposition	400 Nov 02 j 23:32	12°♄06'05 -12°-58'-23		conjunction	408 May 09 j 14:47	19°♄19'34	-10°-56'-8
min. Earth dist.	400 Nov 03 j 04:50	12°♄05'50 47.38961 AU		minimum elong	408 May 09 j 14:58	19°♄19'35	10°56'10
direct	401 Jan 23 j 12:37	11°♄06'58		max. Earth dist.	408 May 09 j 00:28	19°♄18'45	48.61460 AU
				retrograde	408 Aug 20 j 00:09	20°♄49'54	
conjunction	401 May 02 j 20:39	12°♄33'50 -12°-21'-32		opposition	408 Nov 10 j 12:35	19°♄49'52	-11°-17'-13

min. Earth dist.	408 Nov 11 j 01:55	19°8'49"14	46.59632 AU	conjunction	417 May 19 j 03:45	28°8'15"40	-8°-48'-53
direct	409 Jan 31 j 01:53	18°8'50"09		minimum elong	417 May 19 j 03:56	28°8'15"41	8°48'55
				retrograde	417 Aug 29 j 07:17	29°8'47"39	
conjunction	409 May 10 j 20:56	20°8'18"18	-10°-42'-57	opposition	417 Nov 19 j 12:12	28°8'46"48	-9°-4'-3
minimum elong	409 May 10 j 21:08	20°8'18"18	10°42'57	min. Earth dist.	417 Nov 20 j 13:37	28°8'45"34	45.39812 AU
max. Earth dist.	409 May 10 j 04:32	20°8'17"21	48.50393 AU	direct	418 Feb 09 j 05:42	27°8'45"58	
retrograde	409 Aug 21 j 08:35	21°8'48"47		max. Earth dist.	418 May 19 j 06:55	29°8'14"37	47.30031 AU
opposition	409 Nov 11 j 17:36	20°8'48"43	-11°-3'-25				
min. Earth dist.	409 Nov 12 j 09:01	20°8'47"59	46.48209 AU	conjunction	418 May 20 j 11:00	29°8'16"15	-8°-33'-31
direct	410 Feb 01 j 04:45	19°8'48"55		minimum elong	418 May 20 j 11:10	29°8'16"16	8°33'31
max. Earth dist.	410 May 11 j 10:43	21°8'16"20	48.38891 AU		418 Jun 21 j 19:20	0°II	
				retrograde	418 Aug 30 j 15:45	0°II48"30	
conjunction	410 May 12 j 03:33	21°8'17"18	-10°-29'-31		418 Nov 10 j 01:28	30°R8	
minimum elong	410 May 12 j 03:44	21°8'17"18	10°29'32	opposition	418 Nov 20 j 17:47	29°8'47"33	-8°-47'-56
retrograde	410 Aug 22 j 12:52	22°8'47"57		min. Earth dist.	418 Nov 21 j 19:12	29°8'46"18	45.24675 AU
opposition	410 Nov 12 j 22:34	21°8'47"49	-10°-49'-22	direct	419 Feb 10 j 09:44	28°8'46"34	
min. Earth dist.	410 Nov 13 j 14:59	21°8'47"02	46.36305 AU		419 May 09 j 11:54	0°II	
direct	411 Feb 02 j 11:57	20°8'47"56		conjunction	419 May 21 j 18:24	0°II17"12	-8°-17'-52
conjunction	411 May 13 j 10:13	22°8'16"32	-10°-15'-51	minimum elong	419 May 21 j 18:34	0°II17"12	8°17'54
minimum elong	411 May 13 j 10:25	22°8'16"32	10°15'51	max. Earth dist.	419 May 20 j 12:27	0°II15"26	47.14902 AU
max. Earth dist.	411 May 12 j 14:48	22°8'15"24	48.26887 AU	retrograde	419 Sep 01 j 01:43	1°II49"42	
retrograde	411 Aug 23 j 17:54	23°8'47"22		opposition	419 Nov 21 j 23:45	0°II48"40	-8°-31'-33
opposition	411 Nov 14 j 03:44	22°8'47"10	-10°-35'-4	min. Earth dist.	419 Nov 23 j 02:58	0°II47"20	45.09279 AU
min. Earth dist.	411 Nov 14 j 21:34	22°8'46"18	46.23885 AU		420 Jan 08 j 20:00	30°R8	
direct	412 Feb 03 j 18:14	21°8'47"10		direct	420 Feb 11 j 13:11	29°8'47"34	
					420 Mar 16 j 06:04	0°II	
conjunction	412 May 13 j 17:00	23°8'15"58	-10°-1'-57	max. Earth dist.	420 May 20 j 20:03	1°II16"47	46.99507 AU
minimum elong	412 May 13 j 17:11	23°8'15"59	10°01'58				
max. Earth dist.	412 May 12 j 20:16	23°8'14"46	48.14339 AU	conjunction	420 May 22 j 01:58	1°II18"33	-8°-1'-57
retrograde	412 Aug 23 j 23:30	24°8'46"59		minimum elong	420 May 22 j 02:08	1°II18"33	8°01'57
opposition	412 Nov 14 j 09:00	23°8'46"41	-10°-20'-32	retrograde	420 Sep 01 j 08:12	2°II51"21	
min. Earth dist.	412 Nov 15 j 04:52	23°8'45"43	46.10923 AU	opposition	420 Nov 22 j 05:41	1°II50"13	-8°-14'-52
direct	413 Feb 04 j 00:38	22°8'46"34		min. Earth dist.	420 Nov 23 j 09:17	1°II48"52	44.93588 AU
conjunction	413 May 14 j 23:50	24°8'15"35	-9°-47'-50	direct	421 Feb 11 j 20:30	0°II49"00	
minimum elong	413 May 15 j 00:02	24°8'15"35	9°47'51	max. Earth dist.	421 May 22 j 01:29	2°II18"27	46.83797 AU
max. Earth dist.	413 May 14 j 01:46	24°8'14"18	48.01288 AU	conjunction	421 May 23 j 09:35	2°II20"21	-7°-45'-46
retrograde	413 Aug 25 j 07:54	25°8'46"46		minimum elong	421 May 23 j 09:44	2°II20"21	7°45'48
opposition	413 Nov 15 j 14:13	24°8'46"22	-10°-5'-46	retrograde	421 Sep 02 j 15:11	3°II53"27	
min. Earth dist.	413 Nov 16 j 10:27	24°8'45"23	45.97476 AU	opposition	421 Nov 23 j 11:46	2°II52"15	-7°-57'-55
direct	414 Feb 05 j 04:03	23°8'46"06		min. Earth dist.	421 Nov 24 j 16:45	2°II50"49	44.77564 AU
max. Earth dist.	414 May 15 j 06:21	25°8'13"56	47.87759 AU	direct	422 Feb 13 j 02:50	1°II50"55	
conjunction	414 May 16 j 06:37	25°8'15"20	-9°-33'-28	max. Earth dist.	422 May 23 j 08:32	3°II20"40	46.67694 AU
minimum elong	414 May 16 j 06:48	25°8'15"21	9°33'29	conjunction	422 May 24 j 17:32	3°II22"37	-7°-29'-20
retrograde	414 Aug 26 j 15:21	26°8'46"42		minimum elong	422 May 24 j 17:42	3°II22"38	7°29'20
opposition	414 Nov 16 j 19:39	25°8'46"11	-9°-50'-44	retrograde	422 Sep 03 j 20:38	4°II56"03	
min. Earth dist.	414 Nov 17 j 18:06	25°8'45"06	45.83586 AU	opposition	422 Nov 24 j 18:10	3°II54"45	-7°-40'-42
direct	415 Feb 06 j 08:29	24°8'45"46		min. Earth dist.	422 Nov 26 j 00:53	3°II53"14	44.61107 AU
conjunction	415 May 17 j 13:44	26°8'15"15	-9°-18'-52	direct	423 Feb 14 j 11:15	2°II53"16	
minimum elong	415 May 17 j 13:55	26°8'15"16	9°18'53	max. Earth dist.	423 May 24 j 15:10	4°II23"17	46.51146 AU
max. Earth dist.	415 May 16 j 13:09	26°8'13"50	47.73814 AU	conjunction	423 May 26 j 01:43	4°II25"21	-7°-12'-39
retrograde	415 Aug 27 j 19:31	27°8'46"48		minimum elong	423 May 26 j 01:52	4°II25"21	7°12'39
opposition	415 Nov 18 j 00:57	26°8'46"10	-9°-35'-27	retrograde	423 Sep 05 j 06:19	5°II59"06	
min. Earth dist.	415 Nov 18 j 23:59	26°8'45"03	45.69303 AU	opposition	423 Nov 26 j 00:30	4°II57"41	-7°-23'-12
direct	416 Feb 07 j 16:41	25°8'45"37		min. Earth dist.	423 Nov 27 j 07:48	4°II56"08	44.44184 AU
conjunction	416 May 17 j 20:43	27°8'15"21	-9°-4'00	direct	424 Feb 15 j 15:43	3°II56"02	
minimum elong	416 May 17 j 20:54	27°8'15"22	9°04'01	max. Earth dist.	424 May 24 j 21:14	5°II26"18	46.34105 AU
max. Earth dist.	416 May 16 j 17:59	27°8'13"48	47.59513 AU	conjunction	424 May 26 j 10:01	5°II28"30	-6°-55'-42
retrograde	416 Aug 28 j 01:23	28°8'47"06		minimum elong	424 May 26 j 10:11	5°II28"30	6°55'43
opposition	416 Nov 18 j 06:28	27°8'46"21	-9°-19'-53	retrograde	424 Sep 05 j 16:25	7°II02"34	
min. Earth dist.	416 Nov 19 j 06:27	27°8'45"11	45.54704 AU	opposition	424 Nov 26 j 07:15	6°II01"01	-7°-5'-27
direct	417 Feb 07 j 23:15	26°8'45"39		min. Earth dist.	424 Nov 27 j 16:52	5°II59"21	44.26781 AU
max. Earth dist.	417 May 18 j 00:32	28°8'14"05	47.44899 AU	direct	425 Feb 15 j 19:32	4°II59"11	

max. Earth dist.	425 May 26 j 05:05	6°II29'47	46.16598 AU	minimum elong	433 Jun 05 j 19:55	15°II13'44	4°11'20
				retrograde	433 Sep 15 j 21:10	16°II51'12	
conjunction	425 May 27 j 18:22	6°II32'01	-6°-38'-31	opposition	433 Dec 06 j 01:54	15°II48'07	-4°-12'-53
minimum elong	425 May 27 j 18:31	6°II32'01	6°38'32	min. Earth dist.	433 Dec 07 j 19:37	15°II45'59	42.55292 AU
retrograde	425 Sep 06 j 23:59	8°II06'24		direct	434 Feb 25 j 18:39	14°II44'25	
opposition	425 Nov 27 j 14:00	7°II04'41	-6°-47'-26	max. Earth dist.	434 Jun 05 j 05:43	16°II18'20	44.44763 AU
min. Earth dist.	425 Nov 29 j 00:09	7°II02'59	44.08920 AU				
direct	426 Feb 17 j 04:18	6°II02'39		conjunction	434 Jun 07 j 06:08	16°II21'20	-3°-51'-42
max. Earth dist.	426 May 27 j 11:10	7°II33'29	45.98657 AU	minimum elong	434 Jun 07 j 06:14	16°II21'21	3°51'44
				retrograde	434 Sep 17 j 08:23	17°II59'19	
conjunction	426 May 29 j 02:55	7°II35'52	-6°-21'-4	opposition	434 Dec 07 j 10:23	16°II56'05	-3°-52'-15
minimum elong	426 May 29 j 03:04	7°II35'53	6°21'05	min. Earth dist.	434 Dec 09 j 06:24	16°II53'49	42.34879 AU
retrograde	426 Sep 08 j 07:40	9°II10'34		direct	435 Feb 27 j 00:39	15°II52'10	
opposition	426 Nov 28 j 20:47	8°II08'41	-6°-29'-8	max. Earth dist.	435 Jun 06 j 15:42	17°II26'35	44.24230 AU
min. Earth dist.	426 Nov 30 j 08:25	8°II06'54	43.90664 AU				
direct	427 Feb 18 j 12:33	7°II06'26		conjunction	435 Jun 08 j 16:50	17°II29'39	-3°-31'-48
max. Earth dist.	427 May 28 j 19:25	8°II37'37	45.80328 AU	minimum elong	435 Jun 08 j 16:55	17°II29'40	3°31'48
				retrograde	435 Sep 18 j 19:45	19°II08'08	
conjunction	427 May 30 j 11:46	8°II40'03	-6°-3'-21	opposition	435 Dec 08 j 19:07	18°II04'43	-3°-31'-19
minimum elong	427 May 30 j 11:55	8°II40'03	6°03'22	min. Earth dist.	435 Dec 10 j 15:33	18°II02'26	42.14052 AU
retrograde	427 Sep 09 j 13:41	10°II15'05		direct	436 Feb 28 j 09:27	17°II00'34	
opposition	427 Nov 30 j 03:52	9°II13'01	-6°-10'-33	max. Earth dist.	436 Jun 06 j 23:46	18°II35'24	44.03260 AU
min. Earth dist.	427 Dec 01 j 16:55	9°II11'09	43.72048 AU				
direct	428 Feb 19 j 21:51	8°II10'33		conjunction	436 Jun 09 j 03:32	18°II38'39	-3°-11'-38
max. Earth dist.	428 May 29 j 03:00	9°II42'02	45.61682 AU	minimum elong	436 Jun 09 j 03:37	18°II38'39	3°11'39
				retrograde	436 Sep 19 j 08:28	20°II17'38	
conjunction	428 May 30 j 20:33	9°II44'33	-5°-45'-22	opposition	436 Dec 09 j 04:10	19°II14'01	-3°-10'-6
minimum elong	428 May 30 j 20:42	9°II44'34	5°45'23	min. Earth dist.	436 Dec 11 j 02:29	19°II11'38	41.92798 AU
retrograde	428 Sep 09 j 21:42	11°II19'56		direct	437 Feb 28 j 17:48	18°II09'38	
opposition	428 Nov 30 j 10:57	10°II17'41	-5°-51'-41	max. Earth dist.	437 Jun 08 j 10:26	19°II45'00	43.81860 AU
min. Earth dist.	428 Dec 02 j 00:11	10°II15'49	43.53150 AU				
direct	429 Feb 20 j 04:59	9°II15'00		conjunction	437 Jun 10 j 14:42	19°II48'18	-2°-51'-12
max. Earth dist.	429 May 30 j 10:22	10°II46'48	45.42759 AU	minimum elong	437 Jun 10 j 14:47	19°II48'19	2°51'12
				retrograde	437 Sep 20 j 18:01	21°II27'47	
conjunction	429 Jun 01 j 05:34	10°II49'25	-5°-27'-7	opposition	437 Dec 10 j 13:24	20°II23'59	-2°-48'-36
minimum elong	429 Jun 01 j 05:41	10°II49'26	5°27'08	min. Earth dist.	437 Dec 12 j 12:53	20°II21'31	41.71126 AU
retrograde	429 Sep 11 j 08:24	12°II25'11		direct	438 Mar 02 j 05:09	19°II19'19	
opposition	429 Dec 01 j 18:22	11°II22'45	-5°-32'-31	max. Earth dist.	438 Jun 09 j 19:47	20°II55'09	43.60069 AU
min. Earth dist.	429 Dec 03 j 09:21	11°II20'47	43.34013 AU				
direct	430 Feb 21 j 10:05	10°II19'51		conjunction	438 Jun 12 j 01:59	20°II58'35	-2°-30'-29
max. Earth dist.	430 May 31 j 19:43	11°II52'04	45.23623 AU	minimum elong	438 Jun 12 j 02:02	20°II58'36	2°30'31
				retrograde	438 Sep 22 j 04:00	22°II38'36	
conjunction	430 Jun 02 j 14:49	11°II54'42	-5°-8'-35	opposition	438 Dec 11 j 22:50	21°II34'34	-2°-26'-48
minimum elong	430 Jun 02 j 14:57	11°II54'43	5°08'36	min. Earth dist.	438 Dec 13 j 23:08	21°II32'03	41.49092 AU
retrograde	430 Sep 12 j 18:36	13°II30'51		direct	439 Mar 03 j 15:10	20°II29'38	
opposition	430 Dec 03 j 01:55	12°II28'14	-5°-13'-3	max. Earth dist.	439 Jun 11 j 05:56	22°II05'57	43.37910 AU
min. Earth dist.	430 Dec 04 j 16:52	12°II26'16	43.14663 AU				
direct	431 Feb 22 j 17:03	11°II25'07		conjunction	439 Jun 13 j 13:38	22°II09'31	-2°-9'-31
max. Earth dist.	431 Jun 02 j 03:04	12°II57'42	45.04277 AU	minimum elong	439 Jun 13 j 13:41	22°II09'31	2°09'32
				retrograde	439 Sep 23 j 14:23	23°II50'04	
conjunction	431 Jun 04 j 00:15	13°II00'28	-4°-49'-47	opposition	439 Dec 13 j 08:34	22°II45'48	-2°-4'-43
minimum elong	431 Jun 04 j 00:22	13°II00'28	4°49'47	min. Earth dist.	439 Dec 15 j 10:45	22°II43'10	41.26731 AU
retrograde	431 Sep 14 j 04:37	14°II37'01		direct	440 Mar 04 j 00:14	21°II40'35	
opposition	431 Dec 04 j 09:39	13°II34'15	-4°-53'-18	max. Earth dist.	440 Jun 11 j 17:25	23°II17'29	43.15466 AU
min. Earth dist.	431 Dec 06 j 01:55	13°II32'12	42.95120 AU				
direct	432 Feb 24 j 00:11	12°II30'56		conjunction	440 Jun 14 j 01:28	23°II21'05	-1°-48'-17
max. Earth dist.	432 Jun 02 j 12:37	14°II03'59	44.84715 AU	minimum elong	440 Jun 14 j 01:31	23°II21'05	1°48'17
				retrograde	440 Sep 24 j 03:36	25°II02'12	
conjunction	432 Jun 04 j 10:03	14°II06'47	-4°-30'-42	opposition	440 Dec 13 j 18:33	23°II57'41	-1°-42'-20
minimum elong	432 Jun 04 j 10:10	14°II06'47	4°30'43	min. Earth dist.	440 Dec 15 j 20:38	23°II55'02	41.04119 AU
retrograde	432 Sep 14 j 11:24	15°II43'47		direct	441 Mar 05 j 07:58	22°II52'10	
opposition	432 Dec 04 j 17:43	14°II40'51	-4°-33'-14	max. Earth dist.	441 Jun 13 j 03:20	24°II29'34	42.92782 AU
min. Earth dist.	432 Dec 06 j 10:59	14°II38'45	42.75343 AU				
direct	433 Feb 24 j 10:49	13°II37'21		conjunction	441 Jun 15 j 13:21	24°II33'19	-1°-26'-46
max. Earth dist.	433 Jun 03 j 21:05	15°II10'50	44.64909 AU	minimum elong	441 Jun 15 j 13:24	24°II33'19	1°26'47
				retrograde	441 Sep 25 j 17:11	26°II15'01	
conjunction	433 Jun 05 j 19:48	15°II13'43	-4°-11'-20	opposition	441 Dec 15 j 04:53	25°II10'15	-1°-19'-40

min. Earth dist.	441 Dec 17 j 08:39	25°II07'31	40.81310 AU	minimum elong	449 Jun 26 j 02:59	4°☾41'37	1°34'44
direct	442 Mar 06 j 16:19	24°II04'26		retrograde	449 Oct 06 j 06:37	6°☾28'50	
max. Earth dist.	442 Jun 14 j 15:54	25°II42'31	42.69912 AU	opposition	449 Dec 25 j 03:31	5°☾22'00	1°52'00
				min. Earth dist.	449 Dec 27 j 15:08	5°☾18'43	38.91785 AU
conjunction	442 Jun 17 j 01:51	25°II46'16	-1°-4'-59	direct	450 Mar 16 j 16:11	4°☾13'40	
minimum elong	442 Jun 17 j 01:53	25°II46'16	1°05'00	max. Earth dist.	450 Jun 24 j 22:58	5°☾57'13	40.79339 AU
retrograde	442 Sep 27 j 04:58	27°II28'34					
opposition	442 Dec 16 j 15:24	26°II23'33	0°-56'-42	conjunction	450 Jun 27 j 18:32	6°☾01'51	1°58'33
min. Earth dist.	442 Dec 18 j 19:31	26°II20'47	40.58334 AU	minimum elong	450 Jun 27 j 18:29	6°☾01'51	1°58'34
direct	443 Mar 08 j 05:16	25°II17'27		retrograde	450 Oct 07 j 21:38	7°☾49'49	
max. Earth dist.	443 Jun 16 j 02:57	26°II56'06	42.46897 AU	opposition	450 Dec 26 j 16:52	6°☾42'40	2°17'12
				min. Earth dist.	450 Dec 29 j 04:49	6°☾39'21	38.66856 AU
conjunction	443 Jun 18 j 14:34	27°II00'00	0°-42'-57	direct	451 Mar 18 j 05:56	5°☾33'57	
minimum elong	443 Jun 18 j 14:35	27°II00'00	0°42'58	max. Earth dist.	451 Jun 26 j 13:16	7°☾18'14	40.54231 AU
retrograde	443 Sep 28 j 17:53	28°II42'55					
opposition	443 Dec 18 j 02:19	27°II37'40	0°-33'-26	conjunction	451 Jun 29 j 10:30	7°☾23'01	2°22'35
min. Earth dist.	443 Dec 20 j 06:59	27°II34'52	40.35233 AU	minimum elong	451 Jun 29 j 10:25	7°☾23'00	2°22'35
direct	444 Mar 08 j 17:16	26°II31'17		retrograde	451 Oct 09 j 12:45	9°☾11'46	
max. Earth dist.	444 Jun 16 j 15:22	28°II10'37	42.23726 AU	opposition	451 Dec 28 j 06:53	8°☾04'17	2°42'38
				min. Earth dist.	451 Dec 30 j 20:46	8°☾00'51	38.41710 AU
conjunction	444 Jun 19 j 03:36	28°II14'34	0°-20'-39	direct	452 Mar 18 j 18:03	6°☾55'11	
minimum elong	444 Jun 19 j 03:37	28°II14'34	0°20'39	max. Earth dist.	452 Jun 27 j 05:30	8°☾40'19	40.28939 AU
retrograde	444 Sep 29 j 05:12	29°II58'10					
opposition	444 Dec 18 j 13:38	28°II52'41	0°-9'-53	conjunction	452 Jun 30 j 02:39	8°☾45'07	2°46'51
min. Earth dist.	444 Dec 20 j 19:47	28°II49'47	40.11973 AU	minimum elong	452 Jun 30 j 02:34	8°☾45'07	2°46'51
direct	445 Mar 10 j 04:49	27°II46'01		retrograde	452 Oct 10 j 05:10	10°☾34'42	
asc. node	445 May 20 j 11:01	28°II42'19		opposition	452 Dec 28 j 21:10	9°☾26'53	3°08'19
max. Earth dist.	445 Jun 18 j 04:13	29°II26'02	42.00392 AU	min. Earth dist.	452 Dec 31 j 10:53	9°☾23'25	38.16419 AU
				direct	453 Mar 20 j 08:14	8°☾17'22	
conjunction	445 Jun 20 j 17:02	29°II30'03	0°02'00	max. Earth dist.	453 Jun 28 j 20:10	10°☾03'17	40.03524 AU
minimum elong	445 Jun 20 j 17:02	29°II30'03	0°01'59				
behind sun begin	445 Jun 20 j 10:30	29°II29'39		conjunction	453 Jul 01 j 19:14	10°☾08'15	3°11'18
behind sun end	445 Jun 20 j 23:34	29°II30'27		minimum elong	453 Jul 01 j 19:08	10°☾08'14	3°11'18
	445 Jul 09 j 19:43	0°☾		retrograde	453 Oct 12 j 00:34	11°☾58'40	
retrograde	445 Sep 30 j 18:10	1°☾14'21		opposition	453 Dec 30 j 11:51	10°☾50'30	3°34'14
opposition	445 Dec 20 j 01:05	0°☾08'38	0°13'55	min. Earth dist.	454 Jan 02 j 02:49	10°☾46'57	37.91063 AU
min. Earth dist.	445 Dec 22 j 07:19	0°☾05'42	39.88528 AU	direct	454 Mar 21 j 21:12	9°☾40'35	
	445 Dec 26 j 17:33	30°☾II		max. Earth dist.	454 Jun 30 j 13:39	11°☾27'28	39.78050 AU
direct	446 Mar 11 j 15:22	29°II01'40					
	446 May 23 j 02:57	0°☾		conjunction	454 Jul 03 j 12:26	11°☾32'27	3°35'58
max. Earth dist.	446 Jun 19 j 15:57	0°☾42'19	41.76814 AU	minimum elong	454 Jul 03 j 12:19	11°☾32'26	3°35'59
				retrograde	454 Oct 13 j 17:10	13°☾23'45	
conjunction	446 Jun 22 j 06:55	0°☾46'30	0°24'47	opposition	455 Jan 01 j 03:08	12°☾15'14	4°00'22
minimum elong	446 Jun 22 j 06:54	0°☾46'30	0°24'48	min. Earth dist.	455 Jan 03 j 18:26	12°☾11'39	37.65676 AU
retrograde	446 Oct 02 j 10:24	2°☾31'31		direct	455 Mar 23 j 13:08	11°☾04'56	
opposition	446 Dec 21 j 13:08	1°☾25'33	0°38'02	max. Earth dist.	455 Jul 02 j 06:03	12°☾52'42	39.52574 AU
min. Earth dist.	446 Dec 23 j 21:25	1°☾22'30	39.64822 AU				
direct	447 Mar 13 j 00:02	0°☾18'16		conjunction	455 Jul 05 j 05:55	12°☾57'49	4°00'48
max. Earth dist.	447 Jun 21 j 06:09	1°☾59'42	41.52936 AU	minimum elong	455 Jul 05 j 05:47	12°☾57'48	4°00'48
				retrograde	455 Oct 15 j 11:05	14°☾50'01	
conjunction	447 Jun 23 j 21:19	2°☾03'55	0°47'51	opposition	456 Jan 02 j 18:47	13°☾41'12	4°26'41
minimum elong	447 Jun 23 j 21:18	2°☾03'55	0°47'51	min. Earth dist.	456 Jan 05 j 10:13	13°☾37'35	37.40320 AU
retrograde	447 Oct 04 j 01:23	3°☾49'40		direct	456 Mar 24 j 05:18	12°☾30'31	
opposition	447 Dec 23 j 01:28	2°☾43'25	1°02'25	max. Earth dist.	456 Jul 02 j 23:33	14°☾19'15	39.27110 AU
min. Earth dist.	447 Dec 25 j 10:16	2°☾40'20	39.40794 AU				
direct	448 Mar 13 j 12:16	1°☾35'49		conjunction	456 Jul 06 j 00:01	14°☾24'27	4°25'49
max. Earth dist.	448 Jun 21 j 18:28	3°☾17'53	41.28728 AU	minimum elong	456 Jul 05 j 23:52	14°☾24'26	4°25'49
				retrograde	456 Oct 16 j 03:57	16°☾17'37	
conjunction	448 Jun 24 j 11:58	3°☾22'18	1°11'11	opposition	457 Jan 03 j 11:05	15°☾08'29	4°53'12
minimum elong	448 Jun 24 j 11:56	3°☾22'18	1°11'11	min. Earth dist.	457 Jan 06 j 03:45	15°☾04'46	37.14988 AU
retrograde	448 Oct 04 j 17:28	5°☾08'46		direct	457 Mar 25 j 20:48	13°☾57'26	
opposition	448 Dec 23 j 14:16	4°☾02'15	1°27'05	max. Earth dist.	457 Jul 04 j 18:00	15°☾47'13	39.01665 AU
min. Earth dist.	448 Dec 26 j 00:29	3°☾59'04	39.16452 AU				
direct	449 Mar 15 j 00:31	2°☾54'17		conjunction	457 Jul 07 j 18:29	15°☾52'27	4°50'58
max. Earth dist.	449 Jun 23 j 08:45	4°☾37'07	41.04181 AU	minimum elong	457 Jul 07 j 18:20	15°☾52'26	4°50'58
				retrograde	457 Oct 17 j 22:37	17°☾46'37	
conjunction	449 Jun 26 j 03:02	4°☾41'37	1°34'45	opposition	458 Jan 05 j 03:46	16°☾37'11	5°19'54

min. Earth dist.	458 Jan 07 j 20:04	16° \mathfrak{E} 33'28	36.89655 AU	direct	466 Apr 08 j 16:02	28° \mathfrak{E} 04'48	
direct	458 Mar 27 j 11:44	15° \mathfrak{E} 25'46			466 Jul 17 j 03:37	0° \mathfrak{Q}	
max. Earth dist.	458 Jul 06 j 11:31	17° \mathfrak{E} 16'30	38.76166 AU	max. Earth dist.	466 Jul 19 j 14:23	0° \mathfrak{Q} 04'35	36.69186 AU
conjunction	458 Jul 09 j 13:43	17° \mathfrak{E} 21'54	5°16'17	conjunction	466 Jul 22 j 20:43	0° \mathfrak{Q} 10'43	8°41'33
minimum elong	458 Jul 09 j 13:32	17° \mathfrak{E} 21'54	5°16'17	minimum elong	466 Jul 22 j 20:25	0° \mathfrak{Q} 10'42	8°41'32
retrograde	458 Oct 19 j 19:07	19° \mathfrak{E} 17'07		retrograde	466 Nov 02 j 05:52	2° \mathfrak{Q} 14'46	
opposition	459 Jan 06 j 21:02	18° \mathfrak{E} 07'21	5°46'45	opposition	467 Jan 19 j 13:12	1° \mathfrak{Q} 01'51	9°24'55
min. Earth dist.	459 Jan 09 j 15:08	18° \mathfrak{E} 03'31	36.64266 AU	min. Earth dist.	467 Jan 22 j 11:17	0° \mathfrak{Q} 57'35	34.58850 AU
direct	459 Mar 29 j 02:22	16° \mathfrak{E} 55'33			467 Mar 10 j 01:00	30° \mathfrak{R} \mathfrak{E}	
max. Earth dist.	459 Jul 08 j 07:41	18° \mathfrak{E} 47'25	38.50574 AU	direct	467 Apr 10 j 13:59	29° \mathfrak{E} 46'22	
					467 May 11 j 21:12	0° \mathfrak{Q}	
conjunction	459 Jul 11 j 09:38	18° \mathfrak{E} 52'51	5°41'42	max. Earth dist.	467 Jul 21 j 14:01	1° \mathfrak{Q} 47'22	36.43592 AU
minimum elong	459 Jul 11 j 09:27	18° \mathfrak{E} 52'51	5°41'42				
retrograde	459 Oct 21 j 16:38	20° \mathfrak{E} 49'07		conjunction	467 Jul 24 j 21:17	1° \mathfrak{Q} 53'38	9°07'08
opposition	460 Jan 08 j 15:00	19° \mathfrak{E} 39'01	6°13'45	minimum elong	467 Jul 24 j 20:59	1° \mathfrak{Q} 53'36	9°07'08
min. Earth dist.	460 Jan 11 j 09:17	19° \mathfrak{E} 35'09	36.38765 AU	retrograde	467 Nov 04 j 08:44	3° \mathfrak{Q} 58'54	
direct	460 Mar 29 j 20:00	18° \mathfrak{E} 26'49		opposition	468 Jan 21 j 12:11	2° \mathfrak{Q} 45'34	9°52'07
max. Earth dist.	460 Jul 09 j 01:56	20° \mathfrak{E} 19'40	38.24852 AU	min. Earth dist.	468 Jan 24 j 10:17	2° \mathfrak{Q} 41'16	34.33643 AU
				direct	468 Apr 11 j 11:15	1° \mathfrak{Q} 29'37	
conjunction	460 Jul 12 j 05:50	20° \mathfrak{E} 25'18	6°07'15	max. Earth dist.	468 Jul 22 j 15:55	3° \mathfrak{Q} 31'59	36.18254 AU
minimum elong	460 Jul 12 j 05:37	20° \mathfrak{E} 25'17	6°07'15				
retrograde	460 Oct 22 j 15:44	22° \mathfrak{E} 22'37		conjunction	468 Jul 25 j 22:33	3° \mathfrak{Q} 38'15	9°32'34
opposition	461 Jan 09 j 09:31	21° \mathfrak{E} 12'10	6°40'53	minimum elong	468 Jul 25 j 22:14	3° \mathfrak{Q} 38'14	9°32'34
min. Earth dist.	461 Jan 12 j 04:49	21° \mathfrak{E} 08'13	36.13150 AU	retrograde	468 Nov 05 j 10:41	5° \mathfrak{Q} 44'47	
direct	461 Mar 31 j 13:18	19° \mathfrak{E} 59'32		opposition	469 Jan 22 j 11:59	4° \mathfrak{Q} 31'04	10°19'10
max. Earth dist.	461 Jul 10 j 22:46	21° \mathfrak{E} 53'31	37.98990 AU	min. Earth dist.	469 Jan 25 j 10:23	4° \mathfrak{Q} 26'43	34.08706 AU
				direct	469 Apr 13 j 11:41	3° \mathfrak{Q} 14'40	
conjunction	461 Jul 14 j 02:55	21° \mathfrak{E} 59'13	6°32'53	max. Earth dist.	469 Jul 24 j 17:54	5° \mathfrak{Q} 18'23	35.93200 AU
minimum elong	461 Jul 14 j 02:43	21° \mathfrak{E} 59'12	6°32'53				
retrograde	461 Oct 24 j 12:08	23° \mathfrak{E} 57'36		conjunction	469 Jul 28 j 00:33	5° \mathfrak{Q} 24'43	9°57'50
opposition	462 Jan 11 j 04:35	22° \mathfrak{E} 46'46	7°08'07	minimum elong	469 Jul 28 j 00:13	5° \mathfrak{Q} 24'42	9°57'50
min. Earth dist.	462 Jan 14 j 00:55	22° \mathfrak{E} 42'44	35.87410 AU	retrograde	469 Nov 07 j 15:07	7° \mathfrak{Q} 32'33	
direct	462 Apr 02 j 09:12	21° \mathfrak{E} 33'42		opposition	470 Jan 24 j 12:14	6° \mathfrak{Q} 18'27	10°46'02
max. Earth dist.	462 Jul 12 j 19:20	23° \mathfrak{E} 28'45	37.73029 AU	min. Earth dist.	470 Jan 27 j 09:58	6° \mathfrak{Q} 14'07	33.84049 AU
				direct	470 Apr 15 j 11:59	5° \mathfrak{Q} 01'36	
conjunction	462 Jul 16 j 00:30	23° \mathfrak{E} 34'35	6°58'36	max. Earth dist.	470 Jul 26 j 20:26	7° \mathfrak{Q} 06'42	35.68376 AU
minimum elong	462 Jul 16 j 00:16	23° \mathfrak{E} 34'34	6°58'35				
retrograde	462 Oct 26 j 10:07	25° \mathfrak{E} 34'03		conjunction	470 Jul 30 j 03:29	7° \mathfrak{Q} 13'08	10°22'52
opposition	463 Jan 13 j 00:12	24° \mathfrak{E} 22'50	7°35'27	minimum elong	470 Jul 30 j 03:08	7° \mathfrak{Q} 13'07	10°22'51
min. Earth dist.	463 Jan 15 j 20:38	24° \mathfrak{E} 18'46	35.61601 AU	retrograde	470 Nov 09 j 17:42	9° \mathfrak{Q} 22'18	
direct	463 Apr 04 j 05:57	23° \mathfrak{E} 09'18		opposition	471 Jan 26 j 13:35	8° \mathfrak{Q} 07'50	11°12'40
max. Earth dist.	463 Jul 14 j 16:27	25° \mathfrak{E} 05'27	37.46987 AU	min. Earth dist.	471 Jan 29 j 12:30	8° \mathfrak{Q} 03'23	33.59618 AU
				direct	471 Apr 17 j 10:52	6° \mathfrak{Q} 50'33	
conjunction	463 Jul 17 j 22:42	25° \mathfrak{E} 11'25	7°24'21	max. Earth dist.	471 Jul 29 j 00:43	8° \mathfrak{Q} 57'06	35.43760 AU
minimum elong	463 Jul 17 j 22:28	25° \mathfrak{E} 11'23	7°24'21				
retrograde	463 Oct 28 j 07:33	27° \mathfrak{E} 11'59		conjunction	471 Aug 01 j 07:04	9° \mathfrak{Q} 03'34	10°47'39
opposition	464 Jan 14 j 20:34	26° \mathfrak{E} 00'21	8°02'49	minimum elong	471 Aug 01 j 06:43	9° \mathfrak{Q} 03'32	10°47'39
min. Earth dist.	464 Jan 17 j 18:32	25° \mathfrak{E} 56'10	35.35763 AU	retrograde	471 Nov 11 j 21:10	11° \mathfrak{Q} 14'05	
direct	464 Apr 05 j 00:39	24° \mathfrak{E} 46'20		opposition	472 Jan 28 j 15:38	9° \mathfrak{Q} 59'14	11°39'01
max. Earth dist.	464 Jul 15 j 15:29	26° \mathfrak{E} 43'41	37.20959 AU	min. Earth dist.	472 Jan 31 j 13:48	9° \mathfrak{Q} 54'48	33.35376 AU
				direct	472 Apr 18 j 12:19	8° \mathfrak{Q} 41'30	
conjunction	464 Jul 18 j 21:26	26° \mathfrak{E} 49'41	7°50'07	max. Earth dist.	472 Jul 30 j 03:52	10° \mathfrak{Q} 49'24	35.19310 AU
minimum elong	464 Jul 18 j 21:10	26° \mathfrak{E} 49'40	7°50'07				
retrograde	464 Oct 29 j 05:18	28° \mathfrak{E} 51'23		conjunction	472 Aug 02 j 11:27	10° \mathfrak{Q} 56'01	11°12'08
opposition	465 Jan 15 j 17:24	27° \mathfrak{E} 39'20	8°30'13	minimum elong	472 Aug 02 j 11:05	10° \mathfrak{Q} 55'59	11°12'08
min. Earth dist.	465 Jan 18 j 14:44	27° \mathfrak{E} 35'09	35.09980 AU	retrograde	472 Nov 13 j 02:45	13° \mathfrak{Q} 07'55	
direct	465 Apr 06 j 21:10	26° \mathfrak{E} 24'49		opposition	473 Jan 29 j 18:36	11° \mathfrak{Q} 52'40	12°05'04
max. Earth dist.	465 Jul 17 j 13:20	28° \mathfrak{E} 23'17	36.95000 AU	min. Earth dist.	473 Feb 01 j 17:43	11° \mathfrak{Q} 48'09	33.11315 AU
				direct	473 Apr 20 j 11:36	10° \mathfrak{Q} 34'28	
conjunction	465 Jul 20 j 20:38	28° \mathfrak{E} 29'26	8°15'52	max. Earth dist.	473 Aug 01 j 10:07	12° \mathfrak{Q} 43'54	34.95030 AU
minimum elong	465 Jul 20 j 20:22	28° \mathfrak{E} 29'25	8°15'52				
	465 Sep 13 j 04:48	0° \mathfrak{Q}		conjunction	473 Aug 04 j 16:42	12° \mathfrak{Q} 50'30	11°36'16
retrograde	465 Oct 31 j 05:30	0° \mathfrak{Q} 32'18		minimum elong	473 Aug 04 j 16:20	12° \mathfrak{Q} 50'28	11°36'17
	465 Dec 19 j 07:48	30° \mathfrak{R} \mathfrak{E}			473 Oct 30 j 21:07	15° \mathfrak{Q}	
opposition	466 Jan 17 j 15:00	29° \mathfrak{E} 19'49	8°57'36	retrograde	473 Nov 15 j 08:10	15° \mathfrak{Q} 03'47	
min. Earth dist.	466 Jan 20 j 13:25	29° \mathfrak{E} 15'32	34.84322 AU		473 Dec 01 j 00:49	15° \mathfrak{R} \mathfrak{Q}	

opposition	474 Jan 31 j 22:25	13°048'07	12°30'45	retrograde	481 Dec 02 j 13:15	1°042'45	
min. Earth dist.	474 Feb 03 j 21:10	13°043'36	32.87418 AU	opposition	482 Feb 17 j 10:56	0°023'43	15°34'16
direct	474 Apr 22 j 14:25	12°029'28		min. Earth dist.	482 Feb 20 j 05:30	0°019'15	31.09589 AU
max. Earth dist.	474 Aug 03 j 15:03	14°040'15	34.70931 AU		482 Mar 04 j 09:10	30°040	
				direct	482 May 08 j 18:28	29°020'21	
conjunction	474 Aug 06 j 22:41	14°047'00	12°00'02		482 Jul 10 j 12:55	0°00	
minimum elong	474 Aug 06 j 22:17	14°046'58	12°00'01	max. Earth dist.	482 Aug 21 j 02:09	1°024'27	32.92614 AU
	474 Aug 13 j 07:55	15°00					
retrograde	474 Nov 17 j 16:50	17°001'40		conjunction	482 Aug 24 j 02:04	1°031'03	14°47'28
opposition	475 Feb 03 j 02:56	15°045'35	12°56'00	minimum elong	482 Aug 24 j 01:41	1°031'01	14°47'28
min. Earth dist.	475 Feb 06 j 01:53	15°041'02	32.63737 AU	retrograde	482 Dec 05 j 01:39	3°056'52	
	475 Mar 06 j 14:21	15°040		opposition	483 Feb 19 j 22:31	2°037'29	15°53'13
direct	475 Apr 24 j 17:58	14°026'26		min. Earth dist.	483 Feb 22 j 15:55	2°033'05	30.89948 AU
	475 Jun 11 j 21:34	15°00		direct	483 May 11 j 04:23	1°014'44	
max. Earth dist.	475 Aug 05 j 22:52	16°038'47	34.47056 AU	max. Earth dist.	483 Aug 23 j 15:28	3°039'19	32.73021 AU
conjunction	475 Aug 09 j 05:35	16°045'31	12°23'19	conjunction	483 Aug 26 j 14:59	3°045'56	15°04'25
minimum elong	475 Aug 09 j 05:13	16°045'29	12°23'20	minimum elong	483 Aug 26 j 14:38	3°045'54	15°04'26
retrograde	475 Nov 20 j 00:35	19°001'34		retrograde	483 Dec 07 j 17:10	6°013'07	
opposition	476 Feb 05 j 08:30	17°045'02	13°20'45	opposition	484 Feb 22 j 11:00	4°053'24	16°11'01
min. Earth dist.	476 Feb 08 j 07:41	17°040'26	32.40311 AU	min. Earth dist.	484 Feb 25 j 03:11	4°049'03	30.70945 AU
direct	476 Apr 26 j 00:05	16°025'25		direct	484 May 12 j 15:52	3°030'17	
max. Earth dist.	476 Aug 07 j 06:07	18°039'11	34.23487 AU	max. Earth dist.	484 Aug 25 j 07:18	5°056'27	32.54047 AU
conjunction	476 Aug 10 j 12:53	18°046'00	12°46'06	conjunction	484 Aug 28 j 04:44	6°002'56	15°20'15
minimum elong	476 Aug 10 j 12:29	18°045'58	12°46'05	minimum elong	484 Aug 28 j 04:23	6°002'54	15°20'15
retrograde	476 Nov 21 j 10:08	21°003'26		retrograde	484 Dec 09 j 07:35	8°031'28	
opposition	477 Feb 06 j 14:41	19°046'28	13°44'56	opposition	485 Feb 24 j 00:30	7°011'24	16°27'36
min. Earth dist.	477 Feb 09 j 12:52	19°041'54	32.17229 AU	min. Earth dist.	485 Feb 26 j 16:13	7°007'03	30.52536 AU
direct	477 Apr 28 j 06:22	18°026'21		direct	485 May 15 j 05:04	5°047'55	
max. Earth dist.	477 Aug 09 j 14:58	20°041'37	34.00277 AU	max. Earth dist.	485 Aug 27 j 22:40	8°015'31	32.35700 AU
conjunction	477 Aug 12 j 21:13	20°048'27	13°08'17	conjunction	485 Aug 30 j 19:15	8°021'58	15°34'54
minimum elong	477 Aug 12 j 20:50	20°048'25	13°08'17	minimum elong	485 Aug 30 j 18:57	8°021'56	15°34'54
retrograde	477 Nov 23 j 18:13	23°007'17		retrograde	485 Dec 12 j 00:23	10°051'48	
opposition	478 Feb 08 j 21:45	21°049'52	14°08'28	opposition	486 Feb 26 j 14:37	9°031'23	16°42'52
min. Earth dist.	478 Feb 11 j 20:24	21°045'14	31.94555 AU	min. Earth dist.	486 Mar 01 j 04:26	9°027'09	30.34740 AU
direct	478 Apr 30 j 12:18	20°029'16		direct	486 May 17 j 19:10	8°007'32	
max. Earth dist.	478 Aug 12 j 01:16	22°046'05	33.77536 AU	max. Earth dist.	486 Aug 30 j 15:33	10°036'35	32.17974 AU
conjunction	478 Aug 15 j 06:15	22°052'53	13°29'48	conjunction	486 Sep 02 j 10:40	10°042'57	15°48'17
minimum elong	478 Aug 15 j 05:51	22°052'51	13°29'47	minimum elong	486 Sep 02 j 10:21	10°042'55	15°48'17
retrograde	478 Nov 26 j 04:55	25°013'05		retrograde	486 Dec 14 j 16:32	13°014'02	
opposition	479 Feb 11 j 05:41	23°055'15	14°31'16	opposition	487 Mar 01 j 05:54	11°053'16	16°56'47
min. Earth dist.	479 Feb 14 j 02:37	23°050'42	31.72387 AU	min. Earth dist.	487 Mar 03 j 19:25	11°049'02	30.17566 AU
direct	479 May 02 j 20:07	22°034'09		direct	487 May 20 j 09:10	10°029'05	
max. Earth dist.	479 Aug 14 j 11:16	24°052'28	33.55332 AU	max. Earth dist.	487 Sep 02 j 09:19	12°059'31	32.00925 AU
conjunction	479 Aug 17 j 15:56	24°059'18	13°50'33	conjunction	487 Sep 05 j 02:32	13°005'46	16°00'20
minimum elong	479 Aug 17 j 15:33	24°059'16	13°50'33	minimum elong	487 Sep 05 j 02:16	13°005'44	16°00'20
retrograde	479 Nov 28 j 14:39	27°020'54		retrograde	487 Dec 17 j 10:46	15°038'02	
opposition	480 Feb 13 j 14:38	26°002'39	14°53'13	opposition	488 Mar 02 j 21:51	14°016'55	17°09'13
min. Earth dist.	480 Feb 16 j 11:38	25°058'04	31.50805 AU	min. Earth dist.	488 Mar 05 j 08:58	14°012'50	30.01063 AU
direct	480 May 04 j 01:43	24°041'06		direct	488 May 22 j 01:52	12°052'23	
max. Earth dist.	480 Aug 16 j 00:03	27°001'03	33.33763 AU	max. Earth dist.	488 Sep 04 j 03:10	15°024'07	31.84588 AU
conjunction	480 Aug 19 j 02:31	27°007'46	14°10'28	conjunction	488 Sep 06 j 19:08	15°030'17	16°10'58
minimum elong	480 Aug 19 j 02:07	27°007'44	14°10'27	minimum elong	488 Sep 06 j 18:52	15°030'16	16°10'58
retrograde	480 Nov 30 j 00:34	29°030'46		retrograde	488 Dec 19 j 03:14	18°003'41	
opposition	481 Feb 15 j 00:19	28°012'07	15°14'15	opposition	489 Mar 05 j 14:31	16°042'15	17°20'06
min. Earth dist.	481 Feb 17 j 19:25	28°007'38	31.29864 AU	min. Earth dist.	489 Mar 08 j 01:04	16°038'11	29.85293 AU
direct	481 May 06 j 11:08	26°050'09		direct	489 May 24 j 16:31	15°017'23	
max. Earth dist.	481 Aug 18 j 11:27	29°011'35	33.12858 AU	max. Earth dist.	489 Sep 06 j 23:11	17°050'28	31.69047 AU
conjunction	481 Aug 21 j 13:48	29°018'20	14°29'28	conjunction	489 Sep 09 j 12:19	17°056'25	16°20'06
minimum elong	481 Aug 21 j 13:26	29°018'18	14°29'28	minimum elong	489 Sep 09 j 12:06	17°056'23	16°20'07
	481 Sep 09 j 22:17	0°00		retrograde	489 Dec 21 j 20:37	20°030'52	

opposition	490 Mar 08 j 07:57	19° 17 09'07	17°29'21	opposition	498 Mar 29 j 01:37	9° 15 30'16	17°34'55
min. Earth dist.	490 Mar 10 j 15:55	19° 17 05'12	29.70314 AU	min. Earth dist.	498 Mar 30 j 14:27	9° 15 27'40	28.86630 AU
direct	490 May 27 j 10:28	17° 17 43'56		direct	498 Jun 16 j 20:11	8° 15 04'02	
max. Earth dist.	490 Sep 09 j 18:04	20° 17 18'10	31.54363 AU	max. Earth dist.	498 Oct 01 j 05:17	10° 15 45'50	30.74856 AU
conjunction	490 Sep 12 j 05:55	20° 17 24'01	16°27'40	conjunction	498 Oct 02 j 17:33	10° 15 49'30	16°23'36
minimum elong	490 Sep 12 j 05:42	20° 17 24'00	16°27'40	minimum elong	498 Oct 02 j 17:38	10° 15 49'30	16°23'36
retrograde	490 Dec 24 j 15:14	22° 17 59'29		retrograde	499 Jan 14 j 09:09	13° 15 30'21	
opposition	491 Mar 11 j 02:07	21° 17 37'25	17°36'50	opposition	499 Mar 31 j 23:52	12° 15 07'06	17°26'30
min. Earth dist.	491 Mar 13 j 08:32	21° 17 33'37	29.56229 AU	min. Earth dist.	499 Apr 02 j 09:01	12° 15 04'45	28.80782 AU
direct	491 May 30 j 02:05	20° 17 11'57		direct	499 Jun 19 j 20:08	10° 15 40'53	
max. Earth dist.	491 Sep 12 j 15:56	22° 17 47'30	31.40644 AU	max. Earth dist.	499 Oct 04 j 04:40	13° 15 23'06	30.69659 AU
conjunction	491 Sep 15 j 00:06	22° 17 53'02	16°33'33	conjunction	499 Oct 05 j 14:10	13° 15 26'30	16°14'37
minimum elong	491 Sep 14 j 23:57	22° 17 53'01	16°33'33	minimum elong	499 Oct 05 j 14:20	13° 15 26'31	16°14'37
retrograde	491 Dec 27 j 08:46	25° 17 29'26		retrograde	500 Jan 17 j 06:04	16° 15 07'35	
opposition	492 Mar 12 j 21:01	24° 17 07'06	17°42'31	opposition	500 Apr 02 j 22:26	14° 15 44'15	17°16'03
min. Earth dist.	492 Mar 15 j 00:45	24° 17 03'28	29.43113 AU	min. Earth dist.	500 Apr 04 j 05:45	14° 15 42'02	28.75934 AU
direct	492 May 31 j 20:25	22° 17 41'24		direct	500 Jun 21 j 18:00	13° 15 18'03	
max. Earth dist.	492 Sep 14 j 12:02	25° 17 17'59	31.27971 AU	max. Earth dist.	500 Oct 06 j 04:40	16° 15 00'38	30.65503 AU
conjunction	492 Sep 16 j 18:30	25° 17 23'22	16°37'42	conjunction	500 Oct 07 j 10:43	16° 15 03'41	16°03'46
minimum elong	492 Sep 16 j 18:21	25° 17 23'22	16°37'41	minimum elong	500 Oct 07 j 10:53	16° 15 03'42	16°03'46
retrograde	492 Dec 29 j 04:11	28° 17 00'40		retrograde	501 Jan 19 j 02:49	18° 15 44'52	
opposition	493 Mar 15 j 16:26	26° 17 38'06	17°46'16	opposition	501 Apr 05 j 20:59	17° 15 21'29	17°03'34
min. Earth dist.	493 Mar 17 j 17:37	26° 17 34'39	29.31051 AU	min. Earth dist.	501 Apr 07 j 00:42	17° 15 19'32	28.72079 AU
direct	493 Jun 03 j 14:23	25° 17 12'12		direct	501 Jun 24 j 17:52	15° 15 55'18	
max. Earth dist.	493 Sep 17 j 11:08	27° 17 50'00	31.16395 AU	max. Earth dist.	501 Oct 09 j 03:30	18° 15 38'02	30.62381 AU
conjunction	493 Sep 19 j 13:37	27° 17 55'01	16°40'02	conjunction	501 Oct 10 j 07:11	18° 15 40'50	15°51'02
minimum elong	493 Sep 19 j 13:33	27° 17 55'01	16°40'02	minimum elong	501 Oct 10 j 07:25	18° 15 40'52	15°51'01
	493 Nov 18 j 15:43	0° 15		retrograde	502 Jan 22 j 00:26	21° 15 22'00	
retrograde	493 Dec 31 j 22:44	0° 15 33'07		opposition	502 Apr 08 j 19:35	19° 15 58'34	16°49'04
	494 Feb 15 j 00:38	30° 15 R 17		min. Earth dist.	502 Apr 09 j 20:53	19° 15 56'47	28.69267 AU
opposition	494 Mar 18 j 12:26	29° 15 10'22	17°48'03	direct	502 Jun 27 j 15:59	18° 15 32'26	
min. Earth dist.	494 Mar 20 j 11:25	29° 15 07'04	29.20054 AU	max. Earth dist.	502 Oct 12 j 04:01	21° 15 15'21	30.60358 AU
direct	494 Jun 06 j 09:26	27° 15 44'20					
	494 Sep 10 j 16:19	0° 15		conjunction	502 Oct 13 j 03:34	21° 15 17'44	15°36'26
max. Earth dist.	494 Sep 20 j 08:31	0° 15 23'03	31.05941 AU	minimum elong	502 Oct 13 j 03:48	21° 15 17'46	15°36'27
conjunction	494 Sep 22 j 08:59	0° 15 27'54	16°40'32	retrograde	503 Jan 24 j 19:47	23° 15 58'45	
minimum elong	494 Sep 22 j 08:55	0° 15 27'53	16°40'31	opposition	503 Apr 11 j 18:17	22° 15 35'18	16°32'35
retrograde	495 Jan 03 j 20:08	3° 15 06'45		min. Earth dist.	503 Apr 12 j 16:12	22° 15 33'46	28.67535 AU
opposition	495 Mar 21 j 09:00	1° 15 43'51	17°47'50	direct	503 Jun 30 j 15:55	21° 15 09'15	
min. Earth dist.	495 Mar 23 j 04:42	1° 15 40'46	29.10148 AU				
direct	495 Jun 09 j 04:31	0° 15 17'44		conjunction	503 Oct 15 j 23:23	23° 15 54'10	15°20'02
max. Earth dist.	495 Sep 23 j 08:02	2° 15 57'27	30.96582 AU	minimum elong	503 Oct 15 j 23:40	23° 15 54'12	15°20'01
				max. Earth dist.	503 Oct 15 j 02:25	23° 15 52'03	30.59475 AU
conjunction	495 Sep 25 j 04:42	3° 15 01'56	16°39'08	retrograde	504 Jan 27 j 15:44	26° 15 34'58	
minimum elong	495 Sep 25 j 04:43	3° 15 01'56	16°39'08	opposition	504 Apr 13 j 16:48	25° 15 11'31	16°14'07
retrograde	496 Jan 06 j 16:01	5° 15 41'28		min. Earth dist.	504 Apr 14 j 11:19	25° 15 10'13	28.66968 AU
opposition	496 Mar 23 j 06:13	4° 15 18'26	17°45'34	direct	504 Jul 02 j 13:55	23° 15 45'32	
min. Earth dist.	496 Mar 25 j 00:06	4° 15 15'29	29.01290 AU				
direct	496 Jun 11 j 01:39	2° 15 52'16		conjunction	504 Oct 17 j 19:12	26° 15 30'01	15°01'49
max. Earth dist.	496 Sep 25 j 06:22	5° 15 32'45	30.88306 AU	minimum elong	504 Oct 17 j 19:30	26° 15 30'03	15°01'49
				max. Earth dist.	504 Oct 17 j 02:55	26° 15 28'22	30.59801 AU
conjunction	496 Sep 27 j 00:42	5° 15 37'01	16°35'51	retrograde	505 Jan 29 j 09:59	29° 15 10'29	
minimum elong	496 Sep 27 j 00:43	5° 15 37'01	16°35'52	opposition	505 Apr 16 j 15:06	27° 15 47'04	15°53'44
retrograde	497 Jan 08 j 13:55	8° 15 17'05		min. Earth dist.	505 Apr 17 j 06:33	27° 15 45'59	28.67597 AU
opposition	497 Mar 26 j 03:33	6° 15 53'58	17°41'16	direct	505 Jul 05 j 12:38	26° 15 21'14	
min. Earth dist.	497 Mar 27 j 17:54	6° 15 51'16	28.93462 AU				
direct	497 Jun 13 j 23:35	5° 15 27'45		conjunction	505 Oct 20 j 14:34	29° 15 05'09	14°41'51
max. Earth dist.	497 Sep 28 j 05:58	8° 15 08'59	30.81065 AU	minimum elong	505 Oct 20 j 14:54	29° 15 05'11	14°41'50
				max. Earth dist.	505 Oct 20 j 00:51	29° 15 03'46	30.61376 AU
conjunction	497 Sep 29 j 21:07	8° 15 12'56	16°30'41		505 Nov 12 j 15:43	0° 15	
minimum elong	497 Sep 29 j 21:12	8° 15 12'56	16°30'41	retrograde	506 Feb 01 j 06:22	1° 15 M 45'14	
retrograde	498 Jan 11 j 10:33	10° 15 53'28		opposition	506 Apr 19 j 13:14	0° 15 M 21'54	15°31'29
				min. Earth dist.	506 Apr 20 j 00:25	0° 15 M 21'07	28.69469 AU

	506 May 02 j 17:49	30° \mathbb{R} $\underline{\Omega}$		opposition	514 May 10 j 09:23	20° \mathbb{M} 24'32	11°37'58
direct	506 Jul 08 j 10:04	28° $\underline{\Omega}$ 56'16		min. Earth dist.	514 May 09 j 19:51	20° \mathbb{M} 25'27	29.24293 AU
	506 Sep 09 j 01:40	0° \mathbb{M}		direct	514 Jul 29 j 11:56	19° \mathbb{M} 01'21	
conjunction	506 Oct 23 j 09:37	1° \mathbb{M} 39'33	14°20'12	conjunction	514 Nov 12 j 00:43	21° \mathbb{M} 36'47	10°37'25
minimum elong	506 Oct 23 j 09:58	1° \mathbb{M} 39'35	14°20'13	minimum elong	514 Nov 12 j 01:06	21° \mathbb{M} 36'50	10°37'26
max. Earth dist.	506 Oct 23 j 00:34	1° \mathbb{M} 38'38	30.64204 AU	max. Earth dist.	514 Nov 12 j 15:53	21° \mathbb{M} 38'16	31.26158 AU
retrograde	507 Feb 03 j 23:27	4° \mathbb{M} 19'10		retrograde	515 Feb 23 j 16:48	24° \mathbb{M} 10'06	
opposition	507 Apr 22 j 11:17	2° \mathbb{M} 55'57	15°07'27	min. Earth dist.	515 May 12 j 10:46	22° \mathbb{M} 49'42	29.35465 AU
min. Earth dist.	507 Apr 22 j 19:47	2° \mathbb{M} 55'22	28.72561 AU	opposition	515 May 13 j 03:31	22° \mathbb{M} 48'35	11°03'29
direct	507 Jul 11 j 08:18	1° \mathbb{M} 30'34		direct	515 Aug 01 j 06:01	21° \mathbb{M} 25'44	
conjunction	507 Oct 26 j 04:13	4° \mathbb{M} 13'08	13°56'56	conjunction	515 Nov 14 j 14:53	23° \mathbb{M} 59'53	10°04'52
minimum elong	507 Oct 26 j 04:35	4° \mathbb{M} 13'10	13°56'56	minimum elong	515 Nov 14 j 15:16	23° \mathbb{M} 59'55	10°04'52
max. Earth dist.	507 Oct 25 j 21:50	4° \mathbb{M} 12'29	30.68268 AU	max. Earth dist.	515 Nov 15 j 10:04	24° \mathbb{M} 01'44	31.38160 AU
retrograde	508 Feb 06 j 19:08	6° \mathbb{M} 52'12		retrograde	516 Feb 26 j 04:42	26° \mathbb{M} 32'07	
opposition	508 Apr 24 j 08:46	5° \mathbb{M} 29'09	14°41'43	opposition	516 May 14 j 20:49	25° \mathbb{M} 10'49	10°28'11
min. Earth dist.	508 Apr 24 j 12:52	5° \mathbb{M} 28'52	28.76850 AU	min. Earth dist.	516 May 14 j 01:36	25° \mathbb{M} 12'07	29.47564 AU
direct	508 Jul 13 j 05:50	4° \mathbb{M} 04'02		direct	516 Aug 03 j 01:29	23° \mathbb{M} 48'18	
conjunction	508 Oct 27 j 22:28	6° \mathbb{M} 45'49	13°32'10	conjunction	516 Nov 16 j 04:06	26° \mathbb{M} 21'08	9°31'35
minimum elong	508 Oct 27 j 22:51	6° \mathbb{M} 45'51	13°32'11	minimum elong	516 Nov 16 j 04:28	26° \mathbb{M} 21'10	9°31'35
max. Earth dist.	508 Oct 27 j 20:15	6° \mathbb{M} 45'35	30.73496 AU	max. Earth dist.	516 Nov 17 j 01:13	26° \mathbb{M} 23'10	31.51103 AU
retrograde	509 Feb 08 j 12:30	9° \mathbb{M} 24'17		retrograde	517 Feb 27 j 18:45	28° \mathbb{M} 52'16	
opposition	509 Apr 27 j 06:06	8° \mathbb{M} 01'26	14°14'24	opposition	517 May 17 j 13:22	27° \mathbb{M} 31'13	9°52'08
min. Earth dist.	509 Apr 27 j 08:03	8° \mathbb{M} 01'18	28.82263 AU	min. Earth dist.	517 May 16 j 14:14	27° \mathbb{M} 32'46	29.60641 AU
direct	509 Jul 16 j 01:59	6° \mathbb{M} 36'37		direct	517 Aug 05 j 18:21	26° \mathbb{M} 09'03	
conjunction	509 Oct 30 j 16:12	9° \mathbb{M} 17'30	13°05'59	conjunction	517 Nov 18 j 16:41	28° \mathbb{M} 40'33	8°57'40
minimum elong	509 Oct 30 j 16:35	9° \mathbb{M} 17'33	13°05'58	minimum elong	517 Nov 18 j 17:02	28° \mathbb{M} 40'35	8°57'39
max. Earth dist.	509 Oct 30 j 16:49	9° \mathbb{M} 17'34	30.79835 AU	max. Earth dist.	517 Nov 19 j 17:51	28° \mathbb{M} 42'57	31.65012 AU
retrograde	510 Feb 11 j 07:20	11° \mathbb{M} 55'17			517 Dec 25 j 06:52	0° \mathbb{M}	
opposition	510 Apr 30 j 02:52	10° \mathbb{M} 32'39	13°45'36	retrograde	518 Mar 02 j 04:35	1° \mathbb{M} 10'34	
min. Earth dist.	510 Apr 30 j 00:37	10° \mathbb{M} 32'48	28.88738 AU		518 May 13 j 18:59	30° \mathbb{R} \mathbb{M}	
direct	510 Jul 19 j 00:45	9° \mathbb{M} 08'09		min. Earth dist.	518 May 19 j 04:03	29° \mathbb{M} 51'28	29.74704 AU
conjunction	510 Nov 02 j 09:31	11° \mathbb{M} 48'06	12°38'29	opposition	518 May 20 j 05:20	29° \mathbb{M} 49'47	9°15'28
minimum elong	510 Nov 02 j 09:55	11° \mathbb{M} 48'08	12°38'29	direct	518 Aug 08 j 11:10	28° \mathbb{M} 27'59	
max. Earth dist.	510 Nov 02 j 13:31	11° \mathbb{M} 48'30	30.87206 AU		518 Oct 25 j 21:28	0° \mathbb{M}	
retrograde	511 Feb 14 j 00:57	14° \mathbb{M} 25'08		conjunction	518 Nov 21 j 04:28	0° \mathbb{M} 58'08	8°23'12
opposition	511 May 02 j 23:27	13° \mathbb{M} 02'42	13°15'27	minimum elong	518 Nov 21 j 04:48	0° \mathbb{M} 58'10	8°23'12
min. Earth dist.	511 May 02 j 18:59	13° \mathbb{M} 03'01	28.96230 AU	max. Earth dist.	518 Nov 22 j 07:48	1° \mathbb{M} 00'43	31.79909 AU
direct	511 Jul 21 j 21:03	11° \mathbb{M} 38'32		retrograde	519 Mar 04 j 16:00	3° \mathbb{M} 27'01	
conjunction	511 Nov 05 j 02:12	14° \mathbb{M} 17'27	12°09'47	opposition	519 May 22 j 20:27	2° \mathbb{M} 06'32	8°38'17
minimum elong	511 Nov 05 j 02:36	14° \mathbb{M} 17'30	12°09'46	min. Earth dist.	519 May 21 j 15:01	2° \mathbb{M} 08'29	29.89760 AU
max. Earth dist.	511 Nov 05 j 09:19	14° \mathbb{M} 18'10	30.95575 AU	direct	519 Aug 11 j 02:29	0° \mathbb{M} 45'08	
retrograde	511 Nov 23 j 05:32	15° \mathbb{M}		conjunction	519 Nov 23 j 15:33	3° \mathbb{M} 13'56	7°48'16
opposition	512 Feb 16 j 17:50	16° \mathbb{M} 53'40		minimum elong	519 Nov 23 j 15:51	3° \mathbb{M} 13'57	7°48'16
min. Earth dist.	512 May 04 j 19:20	15° \mathbb{M} 31'28	12°44'03	max. Earth dist.	519 Nov 24 j 22:30	3° \mathbb{M} 16'50	31.95751 AU
direct	512 May 04 j 11:11	15° \mathbb{M} 32'01	29.04671 AU	retrograde	520 Mar 06 j 02:11	5° \mathbb{M} 41'42	
	512 May 24 j 11:25	15° \mathbb{R} \mathbb{M}		min. Earth dist.	520 May 23 j 03:34	4° \mathbb{M} 23'35	30.05757 AU
	512 Jul 23 j 18:42	14° \mathbb{M} 07'38		opposition	520 May 24 j 10:58	4° \mathbb{M} 21'31	8°00'40
	512 Sep 18 j 17:48	15° \mathbb{M}		direct	520 Aug 12 j 15:29	3° \mathbb{M} 00'32	
conjunction	512 Nov 06 j 18:23	16° \mathbb{M} 45'27	11°39'58	conjunction	520 Nov 25 j 01:57	5° \mathbb{M} 27'58	7°13'00
minimum elong	512 Nov 06 j 18:47	16° \mathbb{M} 45'30	11°39'58	minimum elong	520 Nov 25 j 02:15	5° \mathbb{M} 28'00	7°13'00
max. Earth dist.	512 Nov 07 j 03:57	16° \mathbb{M} 46'24	31.04866 AU	max. Earth dist.	520 Nov 26 j 11:17	5° \mathbb{M} 31'05	32.12488 AU
retrograde	513 Feb 18 j 10:50	19° \mathbb{M} 20'45		retrograde	521 Mar 08 j 12:47	7° \mathbb{M} 54'36	
opposition	513 May 07 j 14:36	17° \mathbb{M} 58'47	12°11'32	min. Earth dist.	521 May 25 j 13:32	6° \mathbb{M} 37'02	30.22616 AU
min. Earth dist.	513 May 07 j 04:03	17° \mathbb{M} 59'30	29.14039 AU	opposition	521 May 27 j 00:27	6° \mathbb{M} 34'45	7°22'44
direct	513 Jul 26 j 14:19	16° \mathbb{M} 35'17		direct	521 Aug 15 j 06:33	5° \mathbb{M} 14'12	
conjunction	513 Nov 09 j 10:02	19° \mathbb{M} 11'57	11°09'09	conjunction	521 Nov 27 j 11:38	7° \mathbb{M} 40'17	6°37'27
minimum elong	513 Nov 09 j 10:26	19° \mathbb{M} 11'59	11°09'08	minimum elong	521 Nov 27 j 11:54	7° \mathbb{M} 40'19	6°37'27
max. Earth dist.	513 Nov 09 j 23:06	19° \mathbb{M} 13'13	31.15070 AU	max. Earth dist.	521 Nov 28 j 23:31	7° \mathbb{M} 43'36	32.30024 AU
retrograde	514 Feb 21 j 02:15	21° \mathbb{M} 46'16		retrograde	522 Mar 10 j 23:41	10° \mathbb{M} 05'46	

min. Earth dist.	522 May 28 j 00:36	8°♂48'39	30.40278 AU	conjunction	530 Dec 15 j 19:41	26°♂10'54	1°18'33
opposition	522 May 29 j 13:36	8°♂46'15	6°44'36	minimum elong	530 Dec 15 j 19:44	26°♂10'54	1°18'33
direct	522 Aug 17 j 19:23	7°♂26'09		max. Earth dist.	530 Dec 18 j 01:38	26°♂15'33	34.13989 AU
				retrograde	531 Mar 29 j 05:41	28°♂25'55	
conjunction	522 Nov 29 j 20:38	9°♂50'52	6°01'45	min. Earth dist.	531 Jun 15 j 17:32	27°♂12'42	32.25377 AU
minimum elong	522 Nov 29 j 20:53	9°♂50'54	6°01'45	opposition	531 Jun 18 j 01:25	27°♂09'15	1°05'07
max. Earth dist.	522 Dec 01 j 11:19	9°♂54'25	32.48301 AU	direct	531 Sep 06 j 13:52	25°♂52'44	
retrograde	523 Mar 13 j 08:51	12°♂15'12					
min. Earth dist.	523 May 30 j 10:27	10°♂58'34	30.58641 AU	conjunction	531 Dec 17 j 22:35	28°♂05'28	0°44'19
opposition	523 Jun 01 j 01:56	10°♂56'01	6°06'21	minimum elong	531 Dec 17 j 22:36	28°♂05'28	0°44'19
direct	523 Aug 20 j 09:29	9°♂36'20		max. Earth dist.	531 Dec 20 j 07:05	28°♂10'17	34.37043 AU
					532 Feb 23 j 02:48	0°♂	
conjunction	523 Dec 02 j 04:57	11°♂59'42	5°25'57	retrograde	532 Mar 30 j 08:33	0°♂19'22	
minimum elong	523 Dec 02 j 05:10	11°♂59'44	5°25'56		532 May 06 j 15:41	30°♂	
max. Earth dist.	523 Dec 03 j 21:09	12°♂03'22	32.67214 AU	min. Earth dist.	532 Jun 16 j 21:24	29°♂06'35	32.48647 AU
retrograde	524 Mar 14 j 17:53	14°♂22'52		opposition	532 Jun 19 j 06:52	29°♂03'04	0°28'57
min. Earth dist.	524 May 31 j 19:31	13°♂06'43	30.77649 AU	direct	532 Sep 07 j 20:48	27°♂46'58	
opposition	524 Jun 02 j 13:24	13°♂04'02	5°28'03				
direct	524 Aug 21 j 20:43	11°♂44'46		conjunction	532 Dec 19 j 00:40	29°♂58'28	0°10'31
				minimum elong	532 Dec 19 j 00:40	29°♂58'28	0°10'32
conjunction	524 Dec 03 j 12:46	14°♂06'47	4°50'08	behind sun begin	532 Dec 18 j 19:40	29°♂58'04	
minimum elong	524 Dec 03 j 12:58	14°♂06'48	4°50'08	behind sun end	532 Dec 19 j 05:41	29°♂58'53	
max. Earth dist.	524 Dec 05 j 07:54	14°♂10'41	32.86705 AU		532 Dec 19 j 18:43	0°♂	
retrograde	525 Mar 17 j 00:23	16°♂28'45		max. Earth dist.	532 Dec 21 j 10:02	0°♂03'20	34.60586 AU
min. Earth dist.	525 Jun 03 j 04:55	15°♂13'01	30.97204 AU	retrograde	533 Apr 01 j 11:40	2°♂11'19	
opposition	525 Jun 05 j 00:16	15°♂10'15	4°49'49	desc. node	533 Apr 12 j 18:25	2°♂09'26	
direct	525 Aug 24 j 10:32	13°♂51'24		min. Earth dist.	533 Jun 18 j 23:48	0°♂59'01	32.72415 AU
				opposition	533 Jun 21 j 11:47	0°♂55'22	0°-6'-43
conjunction	525 Dec 05 j 19:39	16°♂12'04	4°14'23		533 Aug 02 j 20:35	30°♂	
minimum elong	525 Dec 05 j 19:49	16°♂12'04	4°14'22	direct	533 Sep 10 j 01:03	29°♂39'42	
max. Earth dist.	525 Dec 07 j 15:36	16°♂16'00	33.06698 AU		533 Oct 17 j 03:01	0°♂	
retrograde	526 Mar 19 j 08:16	18°♂32'51					
min. Earth dist.	526 Jun 05 j 12:06	17°♂17'36	31.17274 AU	conjunction	533 Dec 21 j 02:11	1°♂50'01	0°-22'-54
opposition	526 Jun 07 j 10:22	17°♂14'40	4°11'43	minimum elong	533 Dec 21 j 02:10	1°♂50'01	0°22'55
direct	526 Aug 26 j 21:25	15°♂56'13		max. Earth dist.	533 Dec 23 j 14:19	1°♂55'05	34.84563 AU
				retrograde	534 Apr 03 j 11:08	4°♂01'49	
conjunction	526 Dec 08 j 02:02	18°♂15'30	3°38'45	min. Earth dist.	534 Jun 21 j 03:30	2°♂49'55	32.96591 AU
minimum elong	526 Dec 08 j 02:11	18°♂15'31	3°38'46	opposition	534 Jun 23 j 16:11	2°♂46'14	0°-41'-52
max. Earth dist.	526 Dec 10 j 00:49	18°♂19'40	33.27166 AU	direct	534 Sep 12 j 08:08	1°♂31'00	
retrograde	527 Mar 21 j 11:57	20°♂35'07					
min. Earth dist.	527 Jun 07 j 20:40	19°♂20'12	31.37834 AU	conjunction	534 Dec 23 j 03:10	3°♂40'09	0°-55'-46
opposition	527 Jun 09 j 19:46	19°♂17'14	3°33'47	minimum elong	534 Dec 23 j 03:08	3°♂40'09	0°55'47
direct	527 Aug 29 j 08:08	17°♂59'10		max. Earth dist.	534 Dec 25 j 15:45	3°♂45'13	35.08902 AU
				retrograde	535 Apr 05 j 12:29	5°♂50'55	
conjunction	527 Dec 10 j 07:30	20°♂17'05	3°03'18	min. Earth dist.	535 Jun 23 j 04:40	4°♂39'31	33.21113 AU
minimum elong	527 Dec 10 j 07:37	20°♂17'06	3°03'18	opposition	535 Jun 25 j 19:45	4°♂35'42	-1°-16'-28
max. Earth dist.	527 Dec 12 j 07:19	20°♂21'18	33.48108 AU	direct	535 Sep 14 j 12:25	3°♂20'54	
retrograde	528 Mar 22 j 16:40	22°♂35'31					
min. Earth dist.	528 Jun 09 j 02:09	21°♂21'04	31.58892 AU	conjunction	535 Dec 25 j 03:37	5°♂28'54	-1°-28'-9
opposition	528 Jun 11 j 04:13	21°♂17'56	2°56'07	minimum elong	535 Dec 25 j 03:34	5°♂28'54	1°28'11
direct	528 Aug 30 j 17:17	20°♂00'14		max. Earth dist.	535 Dec 27 j 18:12	5°♂34'05	35.33512 AU
				retrograde	536 Apr 06 j 11:44	7°♂38'40	
conjunction	528 Dec 11 j 12:18	22°♂16'49	2°28'05	min. Earth dist.	536 Jun 24 j 07:37	6°♂27'36	33.45889 AU
minimum elong	528 Dec 11 j 12:24	22°♂16'49	2°28'05	opposition	536 Jun 26 j 22:53	6°♂23'48	-1°-50'-29
max. Earth dist.	528 Dec 13 j 14:38	22°♂21'13	33.69528 AU	direct	536 Sep 15 j 15:41	5°♂09'24	
retrograde	529 Mar 24 j 20:39	24°♂34'05					
min. Earth dist.	529 Jun 11 j 08:45	23°♂19'59	31.80485 AU	conjunction	536 Dec 26 j 03:37	7°♂16'16	-2°00'00
opposition	529 Jun 13 j 11:59	23°♂16'47	2°18'45	minimum elong	536 Dec 26 j 03:33	7°♂16'16	2°00'01
direct	529 Sep 02 j 00:01	21°♂59'28		max. Earth dist.	536 Dec 28 j 18:55	7°♂21'29	35.58321 AU
				retrograde	537 Apr 08 j 11:20	9°♂25'02	
conjunction	529 Dec 13 j 16:25	24°♂14'43	1°53'09	min. Earth dist.	537 Jun 26 j 08:14	8°♂14'23	33.70829 AU
minimum elong	529 Dec 13 j 16:30	24°♂14'44	1°53'08	opposition	537 Jun 29 j 01:13	8°♂10'31	-2°-23'-54
max. Earth dist.	529 Dec 15 j 20:38	24°♂19'15	33.91488 AU	direct	537 Sep 17 j 18:22	6°♂56'30	
retrograde	530 Mar 27 j 00:28	26°♂30'50					
min. Earth dist.	530 Jun 13 j 13:02	25°♂17'13	32.02639 AU	conjunction	537 Dec 28 j 03:04	9°♂02'15	-2°-31'-18
opposition	530 Jun 15 j 19:00	25°♂13'52	1°41'44	minimum elong	537 Dec 28 j 02:59	9°♂02'15	2°31'19
direct	530 Sep 04 j 08:18	23°♂56'56		max. Earth dist.	537 Dec 30 j 19:10	9°♂07'29	35.83244 AU

retrograde	538 Apr 10 j 12:48	11°♄10'01		direct	546 Oct 03 j 16:18	21°♄56'41	
min. Earth dist.	538 Jun 28 j 09:33	9°♄59'43	33.95894 AU				
opposition	538 Jul 01 j 03:15	9°♄55'50	-2°-56'-41	conjunction	547 Jan 11 j 22:17	23°♄53'17	-6°-45'-49
direct	538 Sep 19 j 17:51	8°♄42'11		minimum elong	547 Jan 11 j 22:06	23°♄53'16	6°45'50
				max. Earth dist.	547 Jan 14 j 22:12	23°♄58'46	38.12342 AU
conjunction	538 Dec 30 j 02:02	10°♄46'49	-3°-2'-2	retrograde	547 Apr 25 j 08:24	25°♄52'47	
minimum elong	538 Dec 30 j 01:56	10°♄46'49	3°02'02	min. Earth dist.	547 Jul 13 j 15:54	24°♄45'25	36.26803 AU
max. Earth dist.	539 Jan 01 j 19:30	10°♄52'07	36.08254 AU	opposition	547 Jul 16 j 17:59	24°♄41'13	-7°-21'-39
retrograde	539 Apr 12 j 10:55	12°♄53'35		direct	547 Oct 05 j 12:05	23°♄30'37	
min. Earth dist.	539 Jun 30 j 10:15	11°♄43'35	34.21022 AU				
opposition	539 Jul 03 j 04:33	11°♄39'41	-3°-28'-50	conjunction	548 Jan 13 j 16:58	25°♄26'21	-7°-10'-56
direct	539 Sep 21 j 20:27	10°♄26'23		minimum elong	548 Jan 13 j 16:46	25°♄26'20	7°10'57
				max. Earth dist.	548 Jan 16 j 18:25	25°♄31'55	38.38277 AU
conjunction	540 Jan 01 j 00:23	12°♄29'55	-3°-32'-10	retrograde	548 Apr 26 j 02:32	27°♄25'04	
minimum elong	540 Jan 01 j 00:16	12°♄29'55	3°32'12	min. Earth dist.	548 Jul 14 j 12:58	26°♄17'57	36.52899 AU
max. Earth dist.	540 Jan 03 j 17:45	12°♄35'10	36.33313 AU	opposition	548 Jul 17 j 14:18	26°♄13'49	-7°-47'-37
retrograde	540 Apr 13 j 10:48	14°♄35'41		direct	548 Oct 06 j 09:19	25°♄03'34	
min. Earth dist.	540 Jul 01 j 09:21	13°♄26'02	34.46238 AU				
opposition	540 Jul 04 j 05:04	13°♄22'04	-4°00'-20	conjunction	549 Jan 14 j 11:12	26°♄58'28	-7°-35'-24
direct	540 Sep 22 j 21:02	12°♄09'05		minimum elong	549 Jan 14 j 11:00	26°♄58'27	7°35'25
				max. Earth dist.	549 Jan 17 j 12:08	27°♄03'57	38.64134 AU
conjunction	541 Jan 01 j 22:15	14°♄11'33	-4°-1'-43	retrograde	549 Apr 27 j 19:34	28°♄56'25	
minimum elong	541 Jan 01 j 22:08	14°♄11'32	4°01'44	min. Earth dist.	549 Jul 16 j 07:39	27°♄49'39	36.78884 AU
max. Earth dist.	541 Jan 04 j 17:38	14°♄16'54	36.58453 AU	opposition	549 Jul 19 j 10:15	27°♄45'28	-8°-12'-55
retrograde	541 Apr 15 j 07:23	16°♄16'19		direct	549 Oct 08 j 06:22	26°♄35'32	
min. Earth dist.	541 Jul 03 j 09:26	15°♄06'55	34.71559 AU				
opposition	541 Jul 06 j 05:10	15°♄02'58	-4°-31'-10	conjunction	550 Jan 16 j 04:58	28°♄29'36	-7°-59'-16
direct	541 Sep 24 j 23:24	13°♄50'18		minimum elong	550 Jan 16 j 04:45	28°♄29'35	7°59'16
				max. Earth dist.	550 Jan 19 j 06:30	28°♄35'07	38.89830 AU
conjunction	542 Jan 03 j 19:20	15°♄51'42	-4°-30'-39		550 Mar 14 j 19:53	0°≈	
minimum elong	542 Jan 03 j 19:11	15°♄51'41	4°30'41	retrograde	550 Apr 29 j 12:45	0°≈26'49	
max. Earth dist.	542 Jan 06 j 14:49	15°♄57'02	36.83717 AU		550 Jun 15 j 22:27	30°♄♄	
retrograde	542 Apr 17 j 04:19	17°♄55'31		min. Earth dist.	550 Jul 18 j 04:02	29°♄20'17	37.04700 AU
min. Earth dist.	542 Jul 05 j 06:43	16°♄46'29	34.97043 AU	opposition	550 Jul 21 j 05:58	29°♄16'09	-8°-37'-33
opposition	542 Jul 08 j 04:38	16°♄42'26	-5°-1'-19	direct	550 Oct 10 j 02:41	28°♄06'33	
direct	542 Sep 26 j 23:29	15°♄30'05					
				conjunction	551 Jan 17 j 22:35	29°♄59'47	-8°-22'-30
conjunction	543 Jan 05 j 16:05	17°♄30'27	-4°-58'-58	minimum elong	551 Jan 17 j 22:23	29°♄59'46	8°22'30
minimum elong	543 Jan 05 j 15:56	17°♄30'26	4°58'59		551 Jan 18 j 01:32	0°≈	
max. Earth dist.	543 Jan 08 j 13:18	17°♄35'53	37.09141 AU	max. Earth dist.	551 Jan 21 j 00:12	0°≈05'16	39.15337 AU
retrograde	543 Apr 18 j 22:55	19°♄33'21		retrograde	551 May 01 j 06:13	1°≈56'14	
min. Earth dist.	543 Jul 07 j 05:35	18°♄24'35	35.22718 AU	min. Earth dist.	551 Jul 19 j 22:42	0°≈49'58	37.30295 AU
opposition	543 Jul 10 j 03:34	18°♄20'32	-5°-30'-47	opposition	551 Jul 23 j 00:56	0°≈45'50	-9°-1'-30
direct	543 Sep 28 j 23:40	17°♄08'31			551 Aug 29 j 11:00	30°♄♄	
				direct	551 Oct 11 j 21:43	29°♄36'31	
conjunction	544 Jan 07 j 12:22	19°♄07'53	-5°-26'-39		551 Nov 22 j 20:04	0°≈	
minimum elong	544 Jan 07 j 12:12	19°♄07'52	5°26'40				
max. Earth dist.	544 Jan 10 j 10:18	19°♄13'21	37.34754 AU	conjunction	552 Jan 19 j 15:39	1°≈28'56	-8°-45'-7
retrograde	544 Apr 19 j 18:34	21°♄09'53		minimum elong	552 Jan 19 j 15:26	1°≈28'55	8°45'08
min. Earth dist.	544 Jul 08 j 02:15	20°♄01'30	35.48563 AU	max. Earth dist.	552 Jan 22 j 16:42	1°≈34'20	39.40614 AU
opposition	544 Jul 11 j 01:49	19°♄57'23	-5°-59'-33	retrograde	552 May 02 j 00:57	3°≈24'37	
direct	544 Sep 29 j 22:26	18°♄45'42		min. Earth dist.	552 Jul 20 j 17:14	2°≈18'35	37.55686 AU
				opposition	552 Jul 23 j 19:37	2°≈14'28	-9°-24'-49
conjunction	545 Jan 08 j 08:03	20°♄44'07	-5°-53'-41	direct	552 Oct 12 j 14:58	1°≈05'25	
minimum elong	545 Jan 08 j 07:52	20°♄44'06	5°53'42				
max. Earth dist.	545 Jan 11 j 06:43	20°♄49'35	37.60510 AU	conjunction	553 Jan 20 j 08:19	2°≈57'02	-9°-7'-8
retrograde	545 Apr 21 j 15:56	22°♄45'16		minimum elong	553 Jan 20 j 08:07	2°≈57'01	9°07'09
min. Earth dist.	545 Jul 09 j 23:19	21°♄37'12	35.74566 AU	max. Earth dist.	553 Jan 23 j 10:31	3°≈02'28	39.65695 AU
opposition	545 Jul 12 j 23:41	21°♄33'04	-6°-27'-37	retrograde	553 May 03 j 17:39	4°≈51'58	
direct	545 Oct 01 j 18:11	20°♄21'44		min. Earth dist.	553 Jul 22 j 11:52	3°≈46'07	37.80893 AU
				opposition	553 Jul 25 j 13:46	3°≈42'02	-9°-47'-27
conjunction	546 Jan 10 j 03:29	22°♄19'13	-6°-20'-4	direct	553 Oct 14 j 09:35	2°≈33'15	
minimum elong	546 Jan 10 j 03:18	22°♄19'12	6°20'06				
max. Earth dist.	546 Jan 13 j 03:41	22°♄24'46	37.86398 AU	conjunction	554 Jan 22 j 00:31	4°≈24'04	-9°-28'-31
retrograde	546 Apr 23 j 11:21	24°♄19'33		minimum elong	554 Jan 22 j 00:18	4°≈24'03	9°28'32
min. Earth dist.	546 Jul 11 j 20:16	23°♄11'48	36.00662 AU	max. Earth dist.	554 Jan 25 j 01:54	4°≈29'25	39.90632 AU
opposition	546 Jul 14 j 21:04	23°♄07'39	-6°-54'-59	retrograde	554 May 05 j 11:20	6°≈18'15	

min. Earth dist.	554 Jul 24 j 04:23	5°≈12'40	38.06000 AU	min. Earth dist.	562 Aug 04 j 13:17	16°≈12'48	40.03343 AU
opposition	554 Jul 27 j 07:31	5°≈08'33	-10°-9'-26	opposition	562 Aug 07 j 15:38	16°≈08'51	-12°-42'-3
direct	554 Oct 16 j 02:40	4°≈00'00		direct	562 Oct 27 j 13:31	15°≈02'25	
conjunction	555 Jan 23 j 16:22	5°≈50'03	-9°-49'-18	conjunction	563 Feb 03 j 12:05	16°≈47'04	-12°-13'-53
minimum elong	555 Jan 23 j 16:10	5°≈50'02	9°49'19	minimum elong	563 Feb 03 j 11:53	16°≈47'03	12°13'54
max. Earth dist.	555 Jan 26 j 19:01	5°≈55'28	40.15478 AU	max. Earth dist.	563 Feb 06 j 14:55	16°≈52'15	42.10446 AU
retrograde	555 May 07 j 01:11	7°≈43'31		retrograde	563 May 17 j 18:50	18°≈35'30	
min. Earth dist.	555 Jul 25 j 22:35	6°≈38'07	38.31035 AU	min. Earth dist.	563 Aug 06 j 03:52	17°≈31'53	40.26962 AU
opposition	555 Jul 29 j 00:54	6°≈34'03	-10°-30'-45	opposition	563 Aug 09 j 06:07	17°≈27'57	-12°-58'-26
direct	555 Oct 17 j 21:19	5°≈25'46		direct	563 Oct 29 j 05:39	16°≈21'45	
conjunction	556 Jan 25 j 07:58	7°≈15'03	-10°-9'-27	conjunction	564 Feb 05 j 01:21	18°≈05'47	-12°-29'-27
minimum elong	556 Jan 25 j 07:44	7°≈15'02	10°09'27	minimum elong	564 Feb 05 j 01:10	18°≈05'46	12°29'27
max. Earth dist.	556 Jan 28 j 10:28	7°≈20'26	40.40275 AU	max. Earth dist.	564 Feb 08 j 02:58	18°≈10'51	42.33676 AU
retrograde	556 May 07 j 14:05	9°≈07'49		retrograde	564 May 18 j 10:17	19°≈53'37	
min. Earth dist.	556 Jul 26 j 14:04	8°≈02'43	38.56017 AU	min. Earth dist.	564 Aug 06 j 18:19	18°≈50'10	40.50230 AU
opposition	556 Jul 29 j 17:34	7°≈58'35	-10°-51'-24	opposition	564 Aug 09 j 20:14	18°≈46'16	-13°-14'-15
direct	556 Oct 18 j 16:33	6°≈50'34		direct	564 Oct 29 j 17:48	17°≈40'17	
conjunction	557 Jan 25 j 23:04	8°≈39'08	-10°-28'-59	conjunction	565 Feb 05 j 14:22	19°≈23'42	-12°-44'-29
minimum elong	557 Jan 25 j 22:52	8°≈39'07	10°29'00	minimum elong	565 Feb 05 j 14:11	19°≈23'41	12°44'30
max. Earth dist.	557 Jan 29 j 01:52	8°≈44'30	40.65014 AU	max. Earth dist.	565 Feb 08 j 16:36	19°≈28'46	42.56575 AU
retrograde	557 May 09 j 05:59	10°≈31'15		retrograde	565 May 19 j 22:48	21°≈10'57	
min. Earth dist.	557 Jul 28 j 06:50	9°≈26'20	38.80955 AU	min. Earth dist.	565 Aug 08 j 09:14	20°≈07'38	40.73172 AU
opposition	557 Jul 31 j 10:12	9°≈22'15	-11°-11'-24	opposition	565 Aug 11 j 10:04	20°≈03'48	-13°-29'-32
direct	557 Oct 20 j 08:45	8°≈14'30		direct	565 Oct 31 j 08:18	18°≈58'01	
conjunction	558 Jan 27 j 13:52	10°≈02'22	-10°-47'-55	conjunction	566 Feb 07 j 02:50	20°≈40'50	-12°-59'00
minimum elong	558 Jan 27 j 13:39	10°≈02'21	10°47'55	minimum elong	566 Feb 07 j 02:40	20°≈40'49	12°59'01
max. Earth dist.	558 Jan 30 j 17:32	10°≈07'45	40.89702 AU	max. Earth dist.	566 Feb 10 j 03:54	20°≈45'48	42.79189 AU
retrograde	558 May 10 j 20:38	11°≈53'49		retrograde	566 May 21 j 11:46	22°≈27'30	
min. Earth dist.	558 Jul 29 j 22:54	10°≈49'09	39.05802 AU	min. Earth dist.	566 Aug 09 j 22:02	21°≈24'23	40.95865 AU
opposition	558 Aug 02 j 02:22	10°≈45'05	-11°-30'-46	opposition	566 Aug 12 j 23:34	21°≈20'32	-13°-44'-15
direct	558 Oct 22 j 01:04	9°≈37'36		direct	566 Nov 01 j 20:59	20°≈14'57	
conjunction	559 Jan 29 j 04:21	11°≈24'47	-11°-6'-15	conjunction	567 Feb 08 j 15:14	21°≈57'11	-13°-12'-59
minimum elong	559 Jan 29 j 04:09	11°≈24'46	11°06'16	minimum elong	567 Feb 08 j 15:02	21°≈57'11	13°13'00
max. Earth dist.	559 Feb 01 j 07:18	11°≈30'05	41.14283 AU	max. Earth dist.	567 Feb 11 j 16:56	22°≈02'11	43.01571 AU
retrograde	559 May 12 j 13:49	13°≈15'37		retrograde	567 May 22 j 22:36	23°≈43'19	
min. Earth dist.	559 Jul 31 j 14:05	12°≈11'13	39.30535 AU	min. Earth dist.	567 Aug 11 j 12:21	22°≈40'19	41.18353 AU
opposition	559 Aug 03 j 18:05	12°≈07'07	-11°-49'-29	opposition	567 Aug 14 j 12:40	22°≈36'32	-13°-58'-24
direct	559 Oct 23 j 14:33	10°≈59'55		direct	567 Nov 03 j 11:19	21°≈31'09	
conjunction	560 Jan 30 j 18:42	12°≈46'27	-11°-24'00	conjunction	568 Feb 10 j 03:21	23°≈12'51	-13°-26'-27
minimum elong	560 Jan 30 j 18:30	12°≈46'26	11°24'00	minimum elong	568 Feb 10 j 03:12	23°≈12'50	13°26'28
max. Earth dist.	560 Feb 02 j 22:44	12°≈51'48	41.38710 AU	max. Earth dist.	568 Feb 13 j 04:42	23°≈17'47	43.23783 AU
retrograde	560 May 13 j 04:09	14°≈36'40		retrograde	568 May 23 j 08:46	24°≈58'27	
min. Earth dist.	560 Aug 01 j 06:39	13°≈32'26	39.55073 AU	min. Earth dist.	568 Aug 12 j 00:26	23°≈55'40	41.40662 AU
opposition	560 Aug 04 j 09:35	13°≈28'25	-12°-7'-36	opposition	568 Aug 15 j 01:25	23°≈51'52	-14°-12'00
direct	560 Oct 24 j 06:09	12°≈21'29		direct	568 Nov 04 j 01:45	22°≈46'42	
conjunction	561 Jan 31 j 08:38	14°≈07'23	-11°-41'-10	conjunction	569 Feb 10 j 15:00	24°≈27'51	-13°-39'-23
minimum elong	561 Jan 31 j 08:26	14°≈07'22	11°41'12	minimum elong	569 Feb 10 j 14:50	24°≈27'50	13°39'24
max. Earth dist.	561 Feb 03 j 11:39	14°≈12'38	41.62921 AU	max. Earth dist.	569 Feb 13 j 15:53	24°≈32'44	43.45822 AU
retrograde	561 Mar 05 j 01:48	15°≈		retrograde	569 May 24 j 21:28	26°≈12'58	
retrograde	561 May 14 j 18:17	15°≈56'59		min. Earth dist.	569 Aug 13 j 13:34	25°≈10'21	41.62814 AU
min. Earth dist.	561 Jul 28 j 09:56	15°≈		opposition	569 Aug 16 j 14:06	25°≈06'35	-14°-25'-4
opposition	561 Aug 02 j 21:01	14°≈53'02	39.79360 AU	direct	569 Nov 05 j 14:14	24°≈01'39	
direct	561 Oct 25 j 21:03	13°≈42'19		conjunction	570 Feb 12 j 02:41	25°≈42'17	-13°-51'-48
direct	562 Jan 16 j 05:30	15°≈		minimum elong	570 Feb 12 j 02:33	25°≈42'17	13°51'49
conjunction	562 Feb 01 j 22:27	15°≈27'36	-11°-57'-48	max. Earth dist.	570 Feb 15 j 04:23	25°≈47'12	43.67707 AU
minimum elong	562 Feb 01 j 22:15	15°≈27'35	11°57'48	retrograde	570 May 26 j 10:20	27°≈26'54	
max. Earth dist.	562 Feb 05 j 01:31	15°≈32'49	41.86844 AU	min. Earth dist.	570 Aug 15 j 02:21	26°≈24'29	41.84780 AU
retrograde	562 May 16 j 06:33	17°≈16'37		opposition	570 Aug 18 j 02:23	26°≈20'45	-14°-37'-35
				direct	570 Nov 07 j 01:39	25°≈16'03	

conjunction	571 Feb 13 j 14:00	26° \approx 56'12	-14°-3'-43	conjunction	579 Feb 23 j 02:35	6° \times 29'08	-15°-22'-42
minimum elong	571 Feb 13 j 13:50	26° \approx 56'11	14°03'44	minimum elong	579 Feb 23 j 02:29	6° \times 29'07	15°22'43
max. Earth dist.	571 Feb 16 j 14:25	27° \approx 01'00	43.89401 AU	max. Earth dist.	579 Feb 25 j 22:14	6° \times 33'27	45.50382 AU
retrograde	571 May 28 j 00:57	28° \approx 40'21		retrograde	579 Jun 06 j 09:26	8° \times 09'38	
min. Earth dist.	571 Aug 16 j 13:58	27° \approx 38'09	42.06537 AU	min. Earth dist.	579 Aug 26 j 12:54	7° \times 08'26	43.67238 AU
opposition	571 Aug 19 j 14:28	27° \approx 34'25	-14°-49'-35	opposition	579 Aug 29 j 06:34	7° \times 05'07	-16°-8'-44
direct	571 Nov 08 j 10:36	26° \approx 29'57		direct	579 Nov 18 j 06:06	6° \times 02'05	
conjunction	572 Feb 15 j 01:15	28° \approx 09'38	-14°-15'-8	conjunction	580 Feb 24 j 12:17	7° \times 38'06	-15°-30'-39
minimum elong	572 Feb 15 j 01:07	28° \approx 09'37	14°15'10	minimum elong	580 Feb 24 j 12:11	7° \times 38'05	15°30'40
max. Earth dist.	572 Feb 18 j 02:13	28° \approx 14'26	44.10850 AU	max. Earth dist.	580 Feb 27 j 07:55	7° \times 42'25	45.68847 AU
retrograde	572 May 28 j 10:56	29° \approx 53'18		retrograde	580 Jun 06 j 16:36	9° \times 18'11	
min. Earth dist.	572 Aug 17 j 03:22	28° \approx 51'15	42.28015 AU	min. Earth dist.	580 Aug 26 j 22:47	8° \times 17'07	43.85693 AU
opposition	572 Aug 20 j 02:13	28° \approx 47'36	-15°-1'-4	opposition	580 Aug 29 j 16:18	8° \times 13'48	-16°-16'-38
direct	572 Nov 08 j 22:54	27° \approx 43'22		direct	580 Nov 18 j 18:26	7° \times 10'55	
conjunction	573 Feb 15 j 12:19	29° \approx 22'35	-14°-26'-5	conjunction	581 Feb 24 j 21:38	8° \times 46'31	-15°-38'-10
minimum elong	573 Feb 15 j 12:10	29° \approx 22'34	14°26'06	minimum elong	581 Feb 24 j 21:34	8° \times 46'31	15°38'11
max. Earth dist.	573 Feb 18 j 12:15	29° \approx 27'19	44.32011 AU	max. Earth dist.	581 Feb 27 j 15:59	8° \times 50'44	45.87058 AU
	573 Mar 11 j 18:34	0° \times		retrograde	581 Jun 08 j 03:54	10° \times 26'13	
retrograde	573 May 29 j 19:54	1° \times 05'49		min. Earth dist.	581 Aug 28 j 08:45	9° \times 25'16	44.03914 AU
min. Earth dist.	573 Aug 18 j 14:38	0° \times 03'59	42.49162 AU	opposition	581 Aug 31 j 02:05	9° \times 21'59	-16°-24'-5
opposition	573 Aug 21 j 13:47	0° \times 00'20	-15°-12'-5	direct	581 Nov 20 j 02:49	8° \times 19'16	
	573 Aug 21 j 20:08	30° \times		conjunction	582 Feb 26 j 06:53	9° \times 54'28	-15°-45'-16
direct	573 Nov 10 j 12:03	28° \approx 56'18		minimum elong	582 Feb 26 j 06:47	9° \times 54'28	15°45'17
	574 Jan 25 j 04:02	0° \times		max. Earth dist.	582 Mar 01 j 01:48	9° \times 58'42	46.05033 AU
conjunction	574 Feb 16 j 23:04	0° \times 35'04	-14°-36'-35	retrograde	582 Jun 09 j 13:32	11° \times 33'47	
minimum elong	574 Feb 16 j 22:56	0° \times 35'04	14°36'37	min. Earth dist.	582 Aug 29 j 19:31	10° \times 32'56	44.21872 AU
max. Earth dist.	574 Feb 19 j 22:21	0° \times 39'45	44.52800 AU	opposition	582 Sep 01 j 11:37	10° \times 29'43	-16°-31'-5
retrograde	574 May 31 j 06:18	2° \times 17'52		direct	582 Nov 21 j 12:15	9° \times 27'10	
min. Earth dist.	574 Aug 20 j 03:37	1° \times 16'09	42.69916 AU	conjunction	583 Feb 27 j 16:00	11° \times 02'00	-15°-51'-57
opposition	574 Aug 23 j 01:18	1° \times 12'35	-15°-22'-37	minimum elong	583 Feb 27 j 15:57	11° \times 02'00	15°51'58
direct	574 Nov 12 j 00:31	0° \times 08'46		max. Earth dist.	583 Mar 02 j 09:33	11° \times 06'08	46.22755 AU
conjunction	575 Feb 18 j 09:58	1° \times 47'04	-14°-46'-39	retrograde	583 Jun 10 j 23:30	12° \times 40'56	
minimum elong	575 Feb 18 j 09:50	1° \times 47'03	14°46'39	min. Earth dist.	583 Aug 31 j 04:23	11° \times 40'17	44.39557 AU
max. Earth dist.	575 Feb 21 j 08:58	1° \times 51'42	44.73175 AU	opposition	583 Sep 02 j 20:45	11° \times 37'04	-16°-37'-40
retrograde	575 Jun 01 j 16:00	3° \times 29'25		direct	583 Nov 22 j 19:39	10° \times 34'41	
min. Earth dist.	575 Aug 21 j 15:25	2° \times 27'49	42.90210 AU	conjunction	584 Feb 29 j 00:59	12° \times 09'11	-15°-58'-14
opposition	575 Aug 24 j 12:18	2° \times 24'18	-15°-32'-43	minimum elong	584 Feb 29 j 00:55	12° \times 09'11	15°58'15
direct	575 Nov 13 j 13:06	1° \times 20'40		max. Earth dist.	584 Mar 02 j 18:18	12° \times 13'17	46.40175 AU
conjunction	576 Feb 19 j 20:29	2° \times 58'30	-14°-56'-18	retrograde	584 Jun 11 j 07:50	13° \times 47'46	
minimum elong	576 Feb 19 j 20:21	2° \times 58'30	14°56'19	min. Earth dist.	584 Aug 31 j 15:19	12° \times 47'11	44.56920 AU
max. Earth dist.	576 Feb 22 j 17:34	3° \times 02'59	44.93089 AU	opposition	584 Sep 03 j 05:58	12° \times 44'04	-16°-43'-51
retrograde	576 Jun 02 j 05:16	4° \times 40'24		direct	584 Nov 23 j 04:49	11° \times 41'53	
min. Earth dist.	576 Aug 22 j 02:53	3° \times 38'56	43.10053 AU	conjunction	585 Mar 01 j 09:47	13° \times 16'02	-16°-4'-7
opposition	576 Aug 24 j 23:16	3° \times 35'27	-15°-42'-23	minimum elong	585 Mar 01 j 09:44	13° \times 16'02	16°04'09
direct	576 Nov 13 j 22:00	2° \times 31'59		max. Earth dist.	585 Mar 04 j 02:36	13° \times 20'05	46.57260 AU
conjunction	577 Feb 20 j 06:43	4° \times 09'21	-15°-5'-31	retrograde	585 Jun 12 j 14:36	14° \times 54'17	
minimum elong	577 Feb 20 j 06:36	4° \times 09'21	15°05'32	min. Earth dist.	585 Sep 02 j 00:30	13° \times 53'52	44.73897 AU
max. Earth dist.	577 Feb 23 j 04:07	4° \times 13'50	45.12558 AU	opposition	585 Sep 04 j 14:55	13° \times 50'46	-16°-49'-38
retrograde	577 Jun 03 j 16:30	5° \times 50'46		direct	585 Nov 24 j 15:54	12° \times 48'45	
min. Earth dist.	577 Aug 23 j 15:15	4° \times 49'22	43.29458 AU	conjunction	586 Mar 02 j 18:31	14° \times 22'35	-16°-9'-39
opposition	577 Aug 26 j 10:00	4° \times 45'59	-15°-51'-37	minimum elong	586 Mar 02 j 18:27	14° \times 22'35	16°09'39
direct	577 Nov 15 j 07:50	3° \times 42'39		max. Earth dist.	586 Mar 05 j 09:34	14° \times 26'31	46.73931 AU
conjunction	578 Feb 21 j 16:46	5° \times 19'33	-15°-14'-19	retrograde	586 Jun 14 j 00:42	16° \times 00'31	
minimum elong	578 Feb 21 j 16:39	5° \times 19'33	15°14'21	min. Earth dist.	586 Sep 03 j 10:35	15° \times 00'12	44.90443 AU
max. Earth dist.	578 Feb 24 j 12:49	5° \times 23'56	45.31641 AU	opposition	586 Sep 05 j 23:46	14° \times 57'10	-16°-55'-3
retrograde	578 Jun 05 j 02:09	7° \times 00'31		direct	586 Nov 26 j 00:36	13° \times 55'20	
min. Earth dist.	578 Aug 25 j 01:13	5° \times 59'15	43.48503 AU	conjunction	587 Mar 04 j 03:20	15° \times 28'49	-16°-14'-49
opposition	578 Aug 27 j 20:19	5° \times 55'51	-16°00'-24	minimum elong	587 Mar 04 j 03:18	15° \times 28'49	16°14'51
direct	578 Nov 16 j 17:31	4° \times 52'40		max. Earth dist.	587 Mar 06 j 18:23	15° \times 32'44	46.90138 AU

retrograde	587 Jun 15 j 10:43	17° ✕ 06'25		direct	595 Dec 05 j 23:08	23° ✕ 35'58	
min. Earth dist.	587 Sep 04 j 20:55	16° ✕ 06'11	45.06479 AU				
opposition	587 Sep 07 j 08:27	16° ✕ 03'14	-17°00'-7	conjunction	596 Mar 13 j 01:57	25° ✕ 06'41	-16°-45'-53
direct	587 Nov 27 j 08:34	15° ✕ 01'33		minimum elong	596 Mar 13 j 01:59	25° ✕ 06'41	16°45'54
				max. Earth dist.	596 Mar 15 j 08:45	25° ✕ 09'59	48.17761 AU
conjunction	588 Mar 04 j 11:51	16° ✕ 34'43	-16°-19'-39	retrograde	596 Jun 24 j 05:09	26° ✕ 41'25	
minimum elong	588 Mar 04 j 11:48	16° ✕ 34'42	16°19'40	min. Earth dist.	596 Sep 14 j 01:40	25° ✕ 41'53	46.33056 AU
max. Earth dist.	588 Mar 07 j 00:43	16° ✕ 38'28	47.05839 AU	opposition	596 Sep 16 j 06:04	25° ✕ 39'20	-17°-29'-38
retrograde	588 Jun 15 j 21:27	18° ✕ 11'58		direct	596 Dec 06 j 08:04	24° ✕ 38'42	
min. Earth dist.	588 Sep 05 j 05:30	17° ✕ 11'51	45.22008 AU				
opposition	588 Sep 07 j 16:50	17° ✕ 08'55	-17°-4'-50	conjunction	597 Mar 14 j 09:16	26° ✕ 09'09	-16°-47'-37
direct	588 Nov 27 j 14:31	16° ✕ 07'21		minimum elong	597 Mar 14 j 09:16	26° ✕ 09'09	16°47'38
				max. Earth dist.	597 Mar 16 j 16:13	26° ✕ 12'28	48.30393 AU
conjunction	589 Mar 05 j 20:12	17° ✕ 40'11	-16°-24'-9	retrograde	597 Jun 25 j 11:38	27° ✕ 43'38	
minimum elong	589 Mar 05 j 20:10	17° ✕ 40'11	16°24'11	min. Earth dist.	597 Sep 15 j 09:45	26° ✕ 44'11	46.45518 AU
max. Earth dist.	589 Mar 08 j 08:30	17° ✕ 43'54	47.21042 AU	opposition	597 Sep 17 j 13:02	26° ✕ 41'41	-17°-31'-9
retrograde	589 Jun 17 j 03:39	19° ✕ 17'06		direct	597 Dec 07 j 16:54	25° ✕ 41'11	
min. Earth dist.	589 Sep 06 j 15:59	18° ✕ 16'59	45.37058 AU				
opposition	589 Sep 09 j 01:13	18° ✕ 14'10	-17°-9'-12	conjunction	598 Mar 15 j 16:21	27° ✕ 11'24	-16°-49'-1
direct	589 Nov 28 j 23:58	17° ✕ 12'43		minimum elong	598 Mar 15 j 16:24	27° ✕ 11'24	16°49'02
				max. Earth dist.	598 Mar 17 j 21:15	27° ✕ 14'34	48.42626 AU
conjunction	590 Mar 07 j 04:20	18° ✕ 45'13	-16°-28'-19	retrograde	598 Jun 26 j 21:31	28° ✕ 45'38	
minimum elong	590 Mar 07 j 04:19	18° ✕ 45'13	16°28'19	min. Earth dist.	598 Sep 16 j 17:09	27° ✕ 46'16	46.57550 AU
max. Earth dist.	590 Mar 09 j 15:53	18° ✕ 48'53	47.35811 AU	opposition	598 Sep 18 j 19:56	27° ✕ 43'48	-17°-32'-21
retrograde	590 Jun 18 j 08:10	20° ✕ 21'46		direct	598 Dec 08 j 21:46	26° ✕ 43'25	
min. Earth dist.	590 Sep 08 j 00:08	19° ✕ 21'46	45.51687 AU				
opposition	590 Sep 10 j 09:14	19° ✕ 18'57	-17°-13'-12	conjunction	599 Mar 16 j 23:38	28° ✕ 13'24	-16°-50'-9
direct	590 Nov 30 j 10:44	18° ✕ 17'36		minimum elong	599 Mar 16 j 23:40	28° ✕ 13'24	16°50'09
				max. Earth dist.	599 Mar 19 j 03:53	28° ✕ 16'31	48.54385 AU
conjunction	591 Mar 08 j 12:18	19° ✕ 49'47	-16°-32'-8	retrograde	599 Jun 28 j 04:53	29° ✕ 47'22	
minimum elong	591 Mar 08 j 12:16	19° ✕ 49'47	16°32'09	min. Earth dist.	599 Sep 18 j 02:10	28° ✕ 48'01	46.69077 AU
max. Earth dist.	591 Mar 10 j 22:23	19° ✕ 53'20	47.50186 AU	opposition	599 Sep 20 j 02:40	28° ✕ 45'40	-17°-33'-16
retrograde	591 Jun 19 j 16:03	21° ✕ 26'00		direct	599 Dec 10 j 03:50	27° ✕ 45'23	
min. Earth dist.	591 Sep 09 j 09:06	20° ✕ 26'03	45.65967 AU				
opposition	591 Sep 11 j 17:03	20° ✕ 23'18	-17°-16'-51	conjunction	600 Mar 17 j 06:47	29° ✕ 15'08	-16°-50'-59
direct	591 Dec 01 j 19:35	19° ✕ 22'03		minimum elong	600 Mar 17 j 06:50	29° ✕ 15'08	16°51'00
				max. Earth dist.	600 Mar 19 j 09:39	29° ✕ 18'09	48.65645 AU
conjunction	592 Mar 08 j 20:13	20° ✕ 53'54	-16°-35'-35		600 Apr 19 j 00:19	0° Υ	
minimum elong	592 Mar 08 j 20:13	20° ✕ 53'54	16°35'36	retrograde	600 Jun 28 j 10:15	0° Υ 48'50	
max. Earth dist.	592 Mar 11 j 06:34	20° ✕ 57'28	47.64244 AU		600 Sep 09 j 07:01	30° ℞ ✕	
retrograde	592 Jun 19 j 23:14	22° ✕ 29'48		min. Earth dist.	600 Sep 18 j 09:08	29° ✕ 49'33	46.80083 AU
min. Earth dist.	592 Sep 09 j 17:39	21° ✕ 29'54	45.79932 AU	opposition	600 Sep 20 j 09:17	29° ✕ 47'14	-17°-33'-53
opposition	592 Sep 12 j 00:43	21° ✕ 27'12	-17°-20'-9	direct	600 Dec 10 j 11:00	28° ✕ 47'02	
direct	592 Dec 02 j 04:37	20° ✕ 26'05					
conjunction	593 Mar 10 j 03:41	21° ✕ 57'37	-16°-38'-41				
minimum elong	593 Mar 10 j 03:40	21° ✕ 57'36	16°38'42				
max. Earth dist.	593 Mar 12 j 12:29	22° ✕ 01'04	47.78023 AU				
retrograde	593 Jun 21 j 09:36	23° ✕ 33'12					
min. Earth dist.	593 Sep 11 j 01:07	22° ✕ 33'25	45.93633 AU				
opposition	593 Sep 13 j 08:18	22° ✕ 30'43	-17°-23'-3				
direct	593 Dec 03 j 09:20	21° ✕ 29'42					
conjunction	594 Mar 11 j 11:15	23° ✕ 00'57	-16°-41'-26				
minimum elong	594 Mar 11 j 11:16	23° ✕ 00'57	16°41'27				
max. Earth dist.	594 Mar 13 j 20:08	23° ✕ 04'24	47.91539 AU				
retrograde	594 Jun 22 j 18:24	24° ✕ 36'14					
min. Earth dist.	594 Sep 12 j 10:10	23° ✕ 36'30	46.07068 AU				
opposition	594 Sep 14 j 15:43	23° ✕ 33'53	-17°-25'-36				
direct	594 Dec 04 j 14:58	22° ✕ 32'59					
conjunction	595 Mar 12 j 18:44	24° ✕ 03'58	-16°-43'-50				
minimum elong	595 Mar 12 j 18:44	24° ✕ 03'58	16°43'51				
max. Earth dist.	595 Mar 15 j 02:50	24° ✕ 07'21	48.04802 AU				
retrograde	595 Jun 23 j 23:23	25° ✕ 38'58					
min. Earth dist.	595 Sep 13 j 17:09	24° ✕ 39'21	46.20218 AU				
opposition	595 Sep 15 j 22:54	24° ✕ 36'44	-17°-27'-47				

conjunction	600 Mar 17 j 06:47	29° 15 '08	-16°-50'-59	min. Earth dist.	607 Sep 26 j 10:54	6° 51 '48	47.45917 AU
minimum elong	600 Mar 17 j 06:50	29° 15 '08	16°51'00	opposition	607 Sep 28 j 04:09	6° 49 '49	-17°-29'-53
max. Earth dist.	600 Mar 19 j 09:39	29° 18 '09	48.65645 AU	direct	607 Dec 18 j 10:24	5° 50 '13	
	600 Apr 19 j 00:19	0° 0 '					
retrograde	600 Jun 28 j 10:15	0° 48 '50		conjunction	608 Mar 25 j 10:57	7° 18 '18	-16°-47'-15
	600 Sep 09 j 07:01	30° 0 '		minimum elong	608 Mar 25 j 11:02	7° 18 '18	16°47'16
min. Earth dist.	600 Sep 18 j 09:08	29° 49 '33	46.80083 AU	max. Earth dist.	608 Mar 27 j 05:42	7° 20 '48	49.41103 AU
opposition	600 Sep 20 j 09:17	29° 47 '14	-17°-33'-53	retrograde	608 Jul 06 j 12:23	8° 50 '14	
direct	600 Dec 10 j 11:00	28° 47 '02		min. Earth dist.	608 Sep 26 j 17:08	7° 51 '21	47.54048 AU
	601 Mar 06 j 21:40	0° 0 '		opposition	608 Sep 28 j 09:54	7° 49 '25	-17°-28'-5
				direct	608 Dec 18 j 14:20	6° 49 '55	
conjunction	601 Mar 18 j 13:32	0° 16 '32	-16°-51'-33				
minimum elong	601 Mar 18 j 13:35	0° 16 '32	16°51'33	conjunction	609 Mar 26 j 17:02	8° 17 '51	-16°-45'-27
max. Earth dist.	601 Mar 20 j 14:40	0° 19 '27	48.76386 AU	minimum elong	609 Mar 26 j 17:09	8° 17 '51	16°45'28
retrograde	601 Jun 29 j 15:59	1° 49 '59		max. Earth dist.	609 Mar 28 j 11:39	8° 20 '20	49.49075 AU
min. Earth dist.	601 Sep 19 j 17:32	0° 50 '42	46.90596 AU	retrograde	609 Jul 07 j 19:56	9° 49 '38	
opposition	601 Sep 21 j 15:57	0° 48 '28	-17°-34'-14	min. Earth dist.	609 Sep 28 j 00:50	8° 50 '46	47.61787 AU
	601 Nov 09 j 05:29	30° 0 '		opposition	609 Sep 29 j 15:39	8° 48 '55	-17°-26'-1
direct	601 Dec 11 j 18:43	29° 48 '21		direct	609 Dec 19 j 18:53	7° 49 '32	
	602 Jan 12 j 21:54	0° 0 '					
conjunction	602 Mar 19 j 20:28	1° 17 '37	-16°-51'-49	conjunction	610 Mar 27 j 23:18	9° 17 '19	-16°-43'-23
minimum elong	602 Mar 19 j 20:31	1° 17 '37	16°51'51	minimum elong	610 Mar 27 j 23:23	9° 17 '19	16°43'24
max. Earth dist.	602 Mar 21 j 21:25	1° 20 '31	48.86665 AU	max. Earth dist.	610 Mar 29 j 16:30	9° 19 '43	49.56643 AU
retrograde	602 Jun 30 j 20:49	2° 50 '49		retrograde	610 Jul 09 j 02:01	10° 48 '55	
min. Earth dist.	602 Sep 21 j 00:51	1° 51 '34	47.00654 AU	min. Earth dist.	610 Sep 29 j 06:39	9° 50 '09	47.69077 AU
opposition	602 Sep 22 j 22:13	1° 49 '22	-17°-34'-17	opposition	610 Sep 30 j 21:05	9° 48 '19	-17°-23'-40
direct	602 Dec 13 j 03:24	0° 49 '20		direct	610 Dec 20 j 23:10	8° 49 '01	
conjunction	603 Mar 21 j 03:08	2° 18 '21	-16°-51'-49	conjunction	611 Mar 29 j 05:30	10° 16 '41	-16°-41'-5
minimum elong	603 Mar 21 j 03:12	2° 18 '21	16°51'49	minimum elong	611 Mar 29 j 05:37	10° 16 '41	16°41'06
max. Earth dist.	603 Mar 23 j 02:03	2° 21 '07	48.96530 AU	max. Earth dist.	611 Mar 30 j 20:52	10° 18 '58	49.63715 AU
retrograde	603 Jul 02 j 05:35	3° 51 '18		retrograde	611 Jul 10 j 06:54	11° 48 '07	
min. Earth dist.	603 Sep 22 j 07:33	2° 52 '07	47.10335 AU	min. Earth dist.	611 Sep 30 j 14:26	10° 49 '19	47.75852 AU
opposition	603 Sep 24 j 04:27	2° 49 '57	-17°-34'-1	opposition	611 Oct 02 j 02:44	10° 47 '36	-17°-21'-4
direct	603 Dec 14 j 08:16	1° 49 '59		direct	611 Dec 22 j 05:07	9° 48 '23	
conjunction	604 Mar 21 j 09:40	3° 18 '47	-16°-51'-30	conjunction	612 Mar 29 j 11:41	11° 15 '53	-16°-38'-31
minimum elong	604 Mar 21 j 09:43	3° 18 '47	16°51'32	minimum elong	612 Mar 29 j 11:47	11° 15 '54	16°38'32
max. Earth dist.	604 Mar 23 j 08:31	3° 21 '33	49.06031 AU	max. Earth dist.	612 Mar 31 j 02:25	11° 18 '08	49.70258 AU
retrograde	604 Jul 02 j 13:25	4° 51 '30		retrograde	612 Jul 10 j 10:02	12° 47 '09	
min. Earth dist.	604 Sep 22 j 15:24	3° 52 '19	47.19670 AU	min. Earth dist.	612 Sep 30 j 20:53	11° 48 '23	47.82066 AU
opposition	604 Sep 24 j 10:34	3° 50 '14	-17°-33'-27	opposition	612 Oct 02 j 08:09	11° 46 '43	-17°-18'-14
direct	604 Dec 14 j 12:51	2° 50 '21		direct	612 Dec 22 j 13:37	10° 47 '32	
conjunction	605 Mar 22 j 16:07	4° 18 '57	-16°-50'-54	conjunction	613 Mar 30 j 17:40	12° 14 '53	-16°-35'-44
minimum elong	605 Mar 22 j 16:12	4° 18 '57	16°50'54	minimum elong	613 Mar 30 j 17:47	12° 14 '53	16°35'45
max. Earth dist.	605 Mar 24 j 13:57	4° 21 '39	49.15235 AU	max. Earth dist.	613 Apr 01 j 06:00	12° 16 '59	49.76262 AU
retrograde	605 Jul 03 j 18:59	5° 51 '26		retrograde	613 Jul 11 j 16:46	13° 45 '58	
min. Earth dist.	605 Sep 23 j 21:02	4° 52 '22	47.28712 AU	min. Earth dist.	613 Oct 02 j 03:22	12° 47 '12	47.87762 AU
opposition	605 Sep 25 j 16:30	4° 50 '17	-17°-32'-35	opposition	613 Oct 03 j 13:32	12° 45 '35	-17°-15'-9
direct	605 Dec 15 j 17:51	3° 50 '29		direct	613 Dec 23 j 19:25	11° 46 '27	
conjunction	606 Mar 23 j 22:23	5° 18 '54	-16°-49'-59	conjunction	614 Mar 31 j 23:39	13° 13 '38	-16°-32'-42
minimum elong	606 Mar 23 j 22:26	5° 18 '54	16°50'00	minimum elong	614 Mar 31 j 23:46	13° 13 '38	16°32'42
max. Earth dist.	606 Mar 25 j 18:58	5° 21 '31	49.24147 AU	max. Earth dist.	614 Apr 02 j 11:27	13° 15 '42	49.81755 AU
retrograde	606 Jul 04 j 23:24	6° 51 '11		retrograde	614 Jul 13 j 00:11	14° 44 '32	
min. Earth dist.	606 Sep 25 j 04:35	5° 52 '08	47.37469 AU	min. Earth dist.	614 Oct 03 j 10:36	13° 45 '42	47.92962 AU
opposition	606 Sep 26 j 22:30	5° 50 '07	-17°-31'-23	opposition	614 Oct 04 j 18:49	13° 44 '11	-17°-11'-50
direct	606 Dec 17 j 01:45	4° 50 '25		direct	614 Dec 25 j 00:03	12° 45 '05	
conjunction	607 Mar 25 j 04:48	6° 18 '40	-16°-48'-46	conjunction	615 Apr 02 j 05:33	14° 12 '05	-16°-29'-25
minimum elong	607 Mar 25 j 04:54	6° 18 '40	16°48'46	minimum elong	615 Apr 02 j 05:40	14° 12 '06	16°29'26
max. Earth dist.	607 Mar 27 j 01:33	6° 21 '17	49.32778 AU	max. Earth dist.	615 Apr 03 j 15:53	14° 14 '04	49.86800 AU
retrograde	607 Jul 06 j 03:27	7° 50 '46		retrograde	615 Jul 14 j 07:04	15° 42 '48	
				opposition	615 Oct 05 j 23:44	14° 42 '30	-17°-8'-14

min. Earth dist.	615 Oct 04 j 15:41	14°V44'01	47.97739 AU	conjunction	624 Apr 10 j 08:05	22°V50'43	-15°-48'-10
direct	615 Dec 26 j 02:59	13°V43'24		minimum elong	624 Apr 10 j 08:15	22°V50'44	15°48'11
				max. Earth dist.	624 Apr 11 j 08:39	22°V52'07	50.16363 AU
conjunction	616 Apr 02 j 11:17	15°V10'17	-16°-25'-53	retrograde	624 Jul 22 j 04:40	24°V20'24	
minimum elong	616 Apr 02 j 11:25	15°V10'17	16°25'53	opposition	624 Oct 13 j 19:10	23°V20'38	-16°-23'-55
max. Earth dist.	616 Apr 03 j 20:11	15°V12'10	49.91444 AU	min. Earth dist.	624 Oct 12 j 21:48	23°V21'38	48.24836 AU
retrograde	616 Jul 14 j 10:55	16°V40'48		direct	625 Jan 03 j 02:45	22°V21'57	
min. Earth dist.	616 Oct 04 j 22:36	15°V41'58	48.02150 AU				
opposition	616 Oct 06 j 04:52	15°V40'32	-17°-4'-23	conjunction	625 Apr 11 j 13:31	23°V48'04	-15°-42'-22
direct	616 Dec 26 j 09:08	14°V41'29		minimum elong	625 Apr 11 j 13:40	23°V48'05	15°42'23
				max. Earth dist.	625 Apr 12 j 12:21	23°V49'22	50.17492 AU
conjunction	617 Apr 03 j 16:55	16°V08'12	-16°-22'-4	retrograde	625 Jul 23 j 12:26	25°V17'39	
minimum elong	617 Apr 03 j 17:02	16°V08'13	16°22'05	opposition	625 Oct 14 j 23:45	24°V17'55	-16°-17'-47
max. Earth dist.	617 Apr 05 j 01:51	16°V10'06	49.95753 AU	min. Earth dist.	625 Oct 14 j 02:46	24°V18'54	48.25603 AU
retrograde	617 Jul 15 j 12:34	17°V38'35		direct	626 Jan 04 j 04:31	23°V19'15	
min. Earth dist.	617 Oct 06 j 04:03	16°V39'46	48.06227 AU				
opposition	617 Oct 07 j 09:49	16°V38'21	-17°00'-15	conjunction	626 Apr 12 j 19:01	24°V45'19	-15°-36'-22
direct	617 Dec 27 j 17:31	15°V39'19		minimum elong	626 Apr 12 j 19:11	24°V45'19	15°36'24
				max. Earth dist.	626 Apr 13 j 16:06	24°V46'31	50.18107 AU
conjunction	618 Apr 04 j 22:32	17°V05'56	-16°-18'00	retrograde	626 Jul 24 j 16:47	26°V14'48	
minimum elong	618 Apr 04 j 22:40	17°V05'56	16°18'00	min. Earth dist.	626 Oct 15 j 09:34	25°V15'58	48.25890 AU
max. Earth dist.	618 Apr 06 j 05:27	17°V07'42	49.99752 AU	opposition	626 Oct 16 j 04:17	25°V15'05	-16°-11'-25
retrograde	618 Jul 16 j 19:03	18°V36'10		direct	627 Jan 05 j 09:15	24°V16'24	
min. Earth dist.	618 Oct 07 j 09:30	17°V37'22	48.10009 AU				
opposition	618 Oct 08 j 14:39	17°V35'59	-16°-55'-50	conjunction	627 Apr 14 j 00:34	25°V42'25	-15°-30'-8
direct	618 Dec 28 j 22:19	16°V37'00		minimum elong	627 Apr 14 j 00:44	25°V42'25	15°30'09
				max. Earth dist.	627 Apr 14 j 21:17	25°V43'35	50.18281 AU
conjunction	619 Apr 06 j 04:13	18°V03'30	-16°-13'-39	retrograde	627 Jul 25 j 17:30	27°V11'48	
minimum elong	619 Apr 06 j 04:21	18°V03'31	16°13'41	opposition	627 Oct 17 j 08:41	26°V12'06	-16°-4'-49
max. Earth dist.	619 Apr 07 j 10:59	18°V05'16	50.03449 AU	min. Earth dist.	627 Oct 16 j 14:31	26°V12'57	48.25749 AU
retrograde	619 Jul 18 j 01:27	19°V33'37		direct	628 Jan 06 j 17:39	25°V13'25	
opposition	619 Oct 09 j 19:34	18°V33'31	-16°-51'-9				
min. Earth dist.	619 Oct 08 j 16:04	18°V34'49	48.13475 AU	conjunction	628 Apr 14 j 05:43	26°V39'22	-15°-23'-40
direct	619 Dec 30 j 03:08	17°V34'35		minimum elong	628 Apr 14 j 05:53	26°V39'23	15°23'41
				max. Earth dist.	628 Apr 15 j 00:17	26°V40'25	50.18060 AU
conjunction	620 Apr 06 j 09:42	19°V00'59	-16°-9'-3	retrograde	628 Jul 25 j 22:27	28°V08'41	
minimum elong	620 Apr 06 j 09:51	19°V01'00	16°09'04	opposition	628 Oct 17 j 13:07	27°V08'59	-15°-57'-57
max. Earth dist.	620 Apr 07 j 15:21	19°V02'41	50.06844 AU	min. Earth dist.	628 Oct 16 j 19:50	27°V09'48	48.25254 AU
retrograde	620 Jul 18 j 07:35	20°V30'59		direct	629 Jan 06 j 23:17	26°V10'18	
min. Earth dist.	620 Oct 08 j 20:47	19°V32'15	48.16617 AU				
opposition	620 Oct 10 j 00:18	19°V30'57	-16°-46'-12	conjunction	629 Apr 15 j 11:04	27°V36'12	-15°-16'-56
direct	620 Dec 30 j 06:05	18°V32'05		minimum elong	629 Apr 15 j 11:15	27°V36'13	15°16'57
				max. Earth dist.	629 Apr 16 j 05:31	27°V37'15	50.17503 AU
conjunction	621 Apr 07 j 15:11	19°V58'26	-16°-4'-11	retrograde	629 Jul 27 j 04:18	29°V05'27	
minimum elong	621 Apr 07 j 15:19	19°V58'26	16°04'12	opposition	629 Oct 18 j 17:29	28°V05'46	-15°-50'-50
max. Earth dist.	621 Apr 08 j 19:18	20°V00'02	50.09888 AU	min. Earth dist.	629 Oct 18 j 01:42	28°V06'31	48.24435 AU
retrograde	621 Jul 19 j 12:48	21°V28'21		direct	630 Jan 08 j 04:11	27°V07'05	
min. Earth dist.	621 Oct 10 j 03:34	20°V29'35	48.19393 AU				
opposition	621 Oct 11 j 05:07	20°V28'23	-16°-40'-59	conjunction	630 Apr 16 j 16:21	28°V32'57	-15°-9'-58
direct	621 Dec 31 j 10:22	19°V29'34		minimum elong	630 Apr 16 j 16:31	28°V32'57	15°09'59
				max. Earth dist.	630 Apr 17 j 09:36	28°V33'55	50.16658 AU
conjunction	622 Apr 08 j 20:50	20°V55'52	-15°-59'-4		630 Jul 14 j 03:26	0°8	
minimum elong	622 Apr 08 j 21:00	20°V55'53	15°59'05	retrograde	630 Jul 28 j 10:53	0°802'07	
max. Earth dist.	622 Apr 10 j 00:39	20°V57'28	50.12540 AU		630 Aug 11 j 17:08	30°R°V	
retrograde	622 Jul 20 j 15:44	22°V25'42		opposition	630 Oct 19 j 21:45	29°V02'28	-15°-43'-27
min. Earth dist.	622 Oct 11 j 09:06	21°V26'59	48.21719 AU	min. Earth dist.	630 Oct 19 j 05:56	29°V03'13	48.23330 AU
opposition	622 Oct 12 j 09:47	21°V25'49	-16°-35'-32	direct	631 Jan 09 j 06:16	28°V03'47	
direct	623 Jan 01 j 17:38	20°V27'04					
				conjunction	631 Apr 17 j 21:37	29°V29'38	-15°-2'-44
conjunction	623 Apr 10 j 02:26	21°V53'18	-15°-53'-43	minimum elong	631 Apr 17 j 21:49	29°V29'38	15°02'44
minimum elong	623 Apr 10 j 02:34	21°V53'19	15°53'44	max. Earth dist.	631 Apr 18 j 13:26	29°V30'31	50.15518 AU
max. Earth dist.	623 Apr 11 j 03:44	21°V54'45	50.14714 AU		631 May 10 j 16:44	0°8	
retrograde	623 Jul 21 j 21:52	23°V23'04		retrograde	631 Jul 29 j 16:36	0°858'45	
opposition	623 Oct 13 j 14:25	22°V23'15	-16°-29'-50	min. Earth dist.	631 Oct 20 j 11:58	29°V59'47	48.21936 AU
min. Earth dist.	623 Oct 12 j 15:04	22°V24'21	48.23550 AU		631 Oct 20 j 07:28	30°R°V	
direct	624 Jan 02 j 22:27	21°V24'32		opposition	631 Oct 21 j 02:04	29°V59'08	-15°-35'-49
				direct	632 Jan 10 j 09:13	29°V00'27	

	632 Mar 29 j 10:45	0°♄		conjunction	640 Apr 25 j 22:25	8°♄00'23	-13°-47'-9
				minimum elong	640 Apr 25 j 22:37	8°♄00'24	13°47'09
conjunction	632 Apr 18 j 02:58	0°♄26'18	-14°-55'-15	max. Earth dist.	640 Apr 26 j 02:47	8°♄00'38	49.87175 AU
minimum elong	632 Apr 18 j 03:08	0°♄26'19	14°55'16	retrograde	640 Aug 06 j 12:49	9°♄29'23	
max. Earth dist.	632 Apr 18 j 18:44	0°♄27'12	50.14100 AU	opposition	640 Oct 28 j 16:46	8°♄29'50	-14°-16'-21
retrograde	632 Jul 29 j 18:41	1°♄55'23		min. Earth dist.	640 Oct 28 j 12:56	8°♄30'01	47.90444 AU
opposition	632 Oct 21 j 06:20	0°♄55'47	-15°-27'-55	direct	641 Jan 18 j 03:46	7°♄31'01	
min. Earth dist.	632 Oct 20 j 16:38	0°♄56'26	48.20236 AU				
	632 Dec 25 j 09:52	30°♄♂		conjunction	641 Apr 27 j 03:42	8°♄57'04	-13°-37'-38
direct	633 Jan 10 j 15:42	29°♄♂57'08		minimum elong	641 Apr 27 j 03:53	8°♄57'05	13°37'39
	633 Jan 26 j 19:40	0°♄		max. Earth dist.	641 Apr 27 j 06:30	8°♄57'14	49.81798 AU
				retrograde	641 Aug 07 j 18:49	10°♄26'05	
conjunction	633 Apr 19 j 08:05	1°♄22'59	-14°-47'-31	opposition	641 Oct 29 j 21:10	9°♄26'31	-14°-6'-21
minimum elong	633 Apr 19 j 08:17	1°♄23'00	14°47'32	min. Earth dist.	641 Oct 29 j 19:13	9°♄26'36	47.84770 AU
max. Earth dist.	633 Apr 19 j 21:50	1°♄23'46	50.12362 AU	direct	642 Jan 19 j 07:05	8°♄27'40	
retrograde	633 Jul 30 j 23:39	2°♄52'03					
opposition	633 Oct 22 j 10:42	1°♄52'30	-15°-19'-46	conjunction	642 Apr 28 j 09:16	9°♄53'47	-13°-27'-52
min. Earth dist.	633 Oct 21 j 22:07	1°♄53'06	48.18195 AU	minimum elong	642 Apr 28 j 09:29	9°♄53'48	13°27'52
direct	634 Jan 11 j 20:31	0°♄53'52		max. Earth dist.	642 Apr 28 j 12:01	9°♄53'56	49.76109 AU
				retrograde	642 Aug 08 j 21:11	11°♄22'49	
conjunction	634 Apr 20 j 13:35	2°♄19'43	-14°-39'-33	opposition	642 Oct 31 j 01:19	10°♄23'14	-13°-56'-6
minimum elong	634 Apr 20 j 13:45	2°♄19'44	14°39'33	min. Earth dist.	642 Oct 30 j 23:41	10°♄23'19	47.78784 AU
max. Earth dist.	634 Apr 21 j 02:46	2°♄20'28	50.10234 AU	direct	643 Jan 20 j 13:28	9°♄24'21	
retrograde	634 Aug 01 j 04:52	3°♄48'48					
opposition	634 Oct 23 j 14:57	2°♄49'16	-15°-11'-22	conjunction	643 Apr 29 j 14:42	10°♄50'34	-13°-17'-51
min. Earth dist.	634 Oct 23 j 04:15	2°♄49'46	48.15723 AU	minimum elong	643 Apr 29 j 14:53	10°♄50'35	13°17'52
direct	635 Jan 13 j 02:08	1°♄50'38		max. Earth dist.	643 Apr 29 j 15:20	10°♄50'37	49.70122 AU
				retrograde	643 Aug 10 j 02:23	12°♄19'40	
conjunction	635 Apr 21 j 19:06	3°♄16'31	-14°-31'-21	opposition	643 Nov 01 j 05:41	11°♄20'05	-13°-45'-36
minimum elong	635 Apr 21 j 19:18	3°♄16'32	14°31'22	min. Earth dist.	643 Nov 01 j 05:05	11°♄20'07	47.72513 AU
max. Earth dist.	635 Apr 22 j 06:37	3°♄17'11	50.07660 AU	direct	644 Jan 21 j 18:03	10°♄21'11	
retrograde	635 Aug 02 j 12:53	4°♄45'35					
opposition	635 Oct 24 j 19:15	3°♄46'05	-15°-2'-45	conjunction	644 Apr 29 j 20:07	11°♄47'29	-13°-7'-35
min. Earth dist.	635 Oct 24 j 09:03	3°♄46'34	48.12766 AU	minimum elong	644 Apr 29 j 20:20	11°♄47'30	13°07'36
direct	636 Jan 14 j 04:00	2°♄47'27		max. Earth dist.	644 Apr 29 j 20:31	11°♄47'30	49.63835 AU
				retrograde	644 Aug 10 j 07:04	13°♄16'40	
conjunction	636 Apr 22 j 00:27	4°♄13'21	-14°-22'-57	opposition	644 Nov 01 j 10:06	12°♄17'05	-13°-34'-50
minimum elong	636 Apr 22 j 00:38	4°♄13'22	14°22'57	min. Earth dist.	644 Nov 01 j 10:50	12°♄17'03	47.65922 AU
max. Earth dist.	636 Apr 22 j 10:00	4°♄13'54	50.04560 AU	direct	645 Jan 21 j 23:56	11°♄18'10	
retrograde	636 Aug 02 j 19:06	5°♄42'24					
opposition	636 Oct 24 j 23:44	4°♄42'54	-14°-53'-55	conjunction	645 May 01 j 01:41	12°♄44'34	-12°-57'-5
min. Earth dist.	636 Oct 24 j 15:54	4°♄43'16	48.09276 AU	minimum elong	645 May 01 j 01:52	12°♄44'35	12°57'06
direct	637 Jan 14 j 06:51	3°♄44'15		max. Earth dist.	645 May 01 j 00:47	12°♄44'31	49.57235 AU
				retrograde	645 Aug 11 j 15:32	14°♄13'50	
conjunction	637 Apr 23 j 06:03	5°♄10'11	-14°-14'-19	opposition	645 Nov 02 j 14:22	13°♄14'16	-13°-23'-49
minimum elong	637 Apr 23 j 06:14	5°♄10'11	14°14'21	min. Earth dist.	645 Nov 02 j 15:26	13°♄14'13	47.58990 AU
max. Earth dist.	637 Apr 23 j 14:55	5°♄10'41	50.00937 AU	direct	646 Jan 23 j 01:27	12°♄15'19	
retrograde	637 Aug 03 j 21:00	6°♄39'12					
opposition	637 Oct 26 j 03:59	5°♄39'42	-14°-44'-52	conjunction	646 May 02 j 07:22	13°♄41'52	-12°-46'-20
min. Earth dist.	637 Oct 25 j 20:56	5°♄40'02	48.05251 AU	minimum elong	646 May 02 j 07:35	13°♄41'53	12°46'21
direct	638 Jan 15 j 14:13	4°♄41'01		max. Earth dist.	646 May 02 j 04:43	13°♄41'43	49.50241 AU
					646 Jul 10 j 22:09	15°♄	
conjunction	638 Apr 24 j 11:29	6°♄06'58	-14°-5'-29	retrograde	646 Aug 12 j 23:50	15°♄11'13	
minimum elong	638 Apr 24 j 11:40	6°♄06'58	14°05'30		646 Sep 14 j 22:33	15°♄♂	
max. Earth dist.	638 Apr 24 j 17:46	6°♄07'19	49.96801 AU	opposition	646 Nov 03 j 18:52	14°♄11'39	-13°-12'-34
retrograde	638 Aug 05 j 01:15	7°♄35'58		min. Earth dist.	646 Nov 03 j 22:15	14°♄11'30	47.51634 AU
opposition	638 Oct 27 j 08:19	6°♄36'27	-14°-35'-36	direct	647 Jan 24 j 02:37	13°♄12'41	
min. Earth dist.	638 Oct 27 j 02:37	6°♄36'43	48.00741 AU				
direct	639 Jan 16 j 19:57	5°♄37'43		conjunction	647 May 03 j 13:14	14°♄39'22	-12°-35'-22
				minimum elong	647 May 03 j 13:25	14°♄39'23	12°35'22
conjunction	639 Apr 25 j 17:01	7°♄03'42	-13°-56'-26	max. Earth dist.	647 May 03 j 09:55	14°♄39'11	49.42794 AU
minimum elong	639 Apr 25 j 17:12	7°♄03'42	13°56'28		647 May 18 j 19:32	15°♄	
max. Earth dist.	639 Apr 25 j 22:46	7°♄04'01	49.92187 AU	retrograde	647 Aug 14 j 02:36	16°♄08'48	
retrograde	639 Aug 06 j 06:14	8°♄32'42		opposition	647 Nov 04 j 23:13	15°♄09'14	-13°-1'-5
opposition	639 Oct 28 j 12:34	7°♄33'09	-14°-26'-6	min. Earth dist.	647 Nov 05 j 03:19	15°♄09'02	47.43781 AU
min. Earth dist.	639 Oct 28 j 08:39	7°♄33'20	47.95778 AU		647 Nov 13 j 02:46	15°♄♂	
direct	640 Jan 18 j 01:17	6°♄34'23		direct	648 Jan 25 j 09:44	14°♄10'13	

	648 Apr 05 j 18:02	15°♄		minimum elong	656 May 11 j 19:25	23°♄20'36	10°46'28
				max. Earth dist.	656 May 11 j 03:16	23°♄19'40	48.54956 AU
conjunction	648 May 03 j 19:03	15°♄37'02	-12°-24'-11	retrograde	656 Aug 22 j 05:36	24°♄50'54	
minimum elong	648 May 03 j 19:15	15°♄37'03	12°24'12	opposition	656 Nov 12 j 17:13	23°♄50'46	-11°-7'-5
max. Earth dist.	648 May 03 j 13:04	15°♄36'42	49.34831 AU	min. Earth dist.	656 Nov 13 j 08:14	23°♄50'02	46.52829 AU
retrograde	648 Aug 14 j 06:12	17°♄06'33		direct	657 Feb 02 j 05:24	22°♄50'56	
opposition	648 Nov 05 j 03:49	16°♄06'57	-12°-49'-23	max. Earth dist.	657 May 12 j 09:26	24°♄18'09	48.43534 AU
min. Earth dist.	648 Nov 05 j 09:31	16°♄06'40	47.35404 AU				
direct	649 Jan 25 j 16:15	15°♄07'52		conjunction	657 May 13 j 01:32	24°♄19'04	-10°-33'-7
				minimum elong	657 May 13 j 01:44	24°♄19'05	10°33'08
conjunction	649 May 05 j 00:57	16°♄34'49	-12°-12'-46	retrograde	657 Aug 23 j 10:32	25°♄49'34	
minimum elong	649 May 05 j 01:09	16°♄34'49	12°12'47	opposition	657 Nov 13 j 22:07	24°♄49'23	-10°-53'-7
max. Earth dist.	649 May 04 j 18:09	16°♄34'25	49.26325 AU	min. Earth dist.	657 Nov 14 j 13:22	24°♄48'39	46.41084 AU
retrograde	649 Aug 15 j 10:37	18°♄04'25		direct	658 Feb 03 j 11:25	23°♄49'28	
opposition	649 Nov 06 j 08:28	17°♄04'45	-12°-37'-27				
min. Earth dist.	649 Nov 06 j 16:03	17°♄04'23	47.26476 AU	conjunction	658 May 14 j 07:58	25°♄17'52	-10°-19'-32
direct	650 Jan 26 j 22:56	16°♄05'36		minimum elong	658 May 14 j 08:09	25°♄17'52	10°19'32
				max. Earth dist.	658 May 13 j 13:34	25°♄16'48	48.31766 AU
conjunction	650 May 06 j 06:58	17°♄32'39	-12°-1'-9	retrograde	658 Aug 24 j 15:58	26°♄48'33	
minimum elong	650 May 06 j 07:10	17°♄32'39	12°01'11	opposition	658 Nov 15 j 03:04	25°♄48'19	-10°-38'-54
max. Earth dist.	650 May 05 j 22:20	17°♄32'09	49.17301 AU	min. Earth dist.	658 Nov 15 j 19:57	25°♄47'30	46.28973 AU
retrograde	650 Aug 16 j 17:46	19°♄02'19		direct	659 Feb 04 j 17:16	24°♄48'20	
opposition	650 Nov 07 j 12:54	18°♄02'36	-12°-25'-18				
min. Earth dist.	650 Nov 07 j 21:01	18°♄02'13	47.17050 AU	conjunction	659 May 15 j 14:42	26°♄16'59	-10°-5'-42
direct	651 Jan 28 j 02:21	17°♄03'21		minimum elong	659 May 15 j 14:54	26°♄16'59	10°05'43
				max. Earth dist.	659 May 14 j 19:41	26°♄15'53	48.19581 AU
conjunction	651 May 07 j 12:57	18°♄30'30	-11°-49'-19	retrograde	659 Aug 25 j 20:39	27°♄47'52	
minimum elong	651 May 07 j 13:09	18°♄30'31	11°49'19	opposition	659 Nov 16 j 08:17	26°♄47'35	-10°-24'-27
max. Earth dist.	651 May 07 j 02:25	18°♄29'54	49.07788 AU	min. Earth dist.	659 Nov 17 j 02:50	25°♄46'42	46.16407 AU
retrograde	651 Aug 18 j 01:00	20°♄00'15		direct	660 Feb 06 j 00:26	25°♄47'31	
opposition	651 Nov 08 j 17:36	19°♄00'28	-12°-12'-54				
min. Earth dist.	651 Nov 09 j 03:52	18°♄59'58	47.07174 AU	conjunction	660 May 15 j 21:16	27°♄16'25	-9°-51'-38
direct	652 Jan 29 j 05:27	18°♄01'07		minimum elong	660 May 15 j 21:27	27°♄16'25	9°51'39
				max. Earth dist.	660 May 15 j 00:25	27°♄15'12	48.06931 AU
conjunction	652 May 07 j 18:52	19°♄28'23	-11°-37'-14	retrograde	660 Aug 26 j 04:34	28°♄47'31	
minimum elong	652 May 07 j 19:03	19°♄28'24	11°37'15	opposition	660 Nov 16 j 13:33	27°♄47'10	-10°-9'-44
max. Earth dist.	652 May 07 j 08:07	19°♄27'47	48.97862 AU	min. Earth dist.	660 Nov 17 j 08:38	27°♄46'15	46.03354 AU
retrograde	652 Aug 18 j 05:10	20°♄58'13		direct	661 Feb 06 j 04:23	26°♄47'00	
opposition	652 Nov 08 j 22:12	19°♄58'20	-12°00'-16	max. Earth dist.	661 May 16 j 05:16	28°♄14'49	47.93766 AU
min. Earth dist.	652 Nov 09 j 08:50	19°♄57'50	46.96906 AU				
direct	653 Jan 29 j 11:14	18°♄58'52		conjunction	661 May 17 j 04:08	28°♄16'08	-9°-37'-21
max. Earth dist.	653 May 08 j 11:50	20°♄25'33	48.87577 AU	minimum elong	661 May 17 j 04:20	28°♄16'09	9°37'23
				retrograde	661 Aug 27 j 12:51	29°♄47'27	
conjunction	653 May 09 j 00:48	20°♄26'18	-11°-24'-55	opposition	661 Nov 17 j 18:54	28°♄47'01	-9°-54'-47
minimum elong	653 May 09 j 01:00	20°♄26'19	11°24'55	min. Earth dist.	661 Nov 18 j 16:23	28°♄45'59	45.89793 AU
retrograde	653 Aug 19 j 10:26	21°♄56'13		direct	662 Feb 07 j 07:58	27°♄46'44	
opposition	653 Nov 10 j 02:48	20°♄56'15	-11°-47'-22	max. Earth dist.	662 May 17 j 11:42	29°♄14'45	47.80113 AU
min. Earth dist.	653 Nov 10 j 14:39	20°♄55'41	46.86316 AU				
direct	654 Jan 30 j 16:31	19°♄56'41		conjunction	662 May 18 j 11:12	29°♄16'07	-9°-22'-49
				minimum elong	662 May 18 j 11:23	29°♄16'08	9°22'50
conjunction	654 May 10 j 06:59	21°♄24'16	-11°-12'-21		662 Jun 20 j 05:19	0°♂	
minimum elong	654 May 10 j 07:10	21°♄24'16	11°12'22	retrograde	662 Aug 28 j 19:27	0°♂47'38	
max. Earth dist.	654 May 09 j 17:40	21°♄23'30	48.76977 AU		662 Nov 07 j 20:22	30°♂	
retrograde	654 Aug 20 j 13:33	22°♄54'18		opposition	662 Nov 19 j 00:17	29°♄47'06	-9°-39'-35
opposition	654 Nov 11 j 07:35	21°♄54'16	-11°-34'-12	min. Earth dist.	662 Nov 19 j 22:17	29°♄46'02	45.75749 AU
min. Earth dist.	654 Nov 11 j 20:39	21°♄53'38	46.75420 AU	direct	663 Feb 08 j 13:57	28°♄46'40	
direct	655 Jan 31 j 23:51	20°♄54'36			663 May 08 j 00:13	0°♂	
conjunction	655 May 11 j 13:04	22°♄22'20	-10°-59'-31	conjunction	663 May 19 j 18:07	0°♂16'20	-9°-8'-3
minimum elong	655 May 11 j 13:16	22°♄22'21	10°59'32	minimum elong	663 May 19 j 18:18	0°♂16'21	9°08'05
max. Earth dist.	655 May 10 j 22:36	22°♄21'30	48.66104 AU	max. Earth dist.	663 May 18 j 16:04	0°♂14'49	47.65997 AU
retrograde	655 Aug 21 j 20:41	23°♄52'30		retrograde	663 Aug 30 j 02:03	1°♂48'03	
opposition	655 Nov 12 j 12:16	22°♄52'25	-11°-20'-47	opposition	663 Nov 20 j 05:44	0°♂47'24	-9°-24'-7
min. Earth dist.	655 Nov 13 j 01:25	22°♄51'47	46.64260 AU	min. Earth dist.	663 Nov 21 j 05:21	0°♂46'16	45.61284 AU
direct	656 Feb 02 j 03:35	21°♄52'39			664 Jan 05 j 21:47	30°♂	
				direct	664 Feb 09 j 20:07	29°♄46'50	
conjunction	656 May 11 j 19:14	23°♄20'35	-10°-46'-27		664 Mar 15 j 14:20	0°♂	

max. Earth dist.	664 May 18 j 22:48	1°II15'13	47.51479 AU	minimum elong	672 May 28 j 15:06	9°II31'15	6°43'30
				retrograde	672 Sep 07 j 20:29	11°II05'29	
conjunction	664 May 20 j 01:16	1°II16'45	-8°-53'-2	opposition	672 Nov 28 j 12:25	10°II03'50	-6°-52'-38
minimum elong	664 May 20 j 01:27	1°II16'46	8°53'03	min. Earth dist.	672 Nov 29 j 21:08	10°II02'12	44.17233 AU
retrograde	664 Aug 30 j 05:35	2°II48'41		direct	673 Feb 18 j 02:55	9°II01'55	
opposition	664 Nov 20 j 11:18	1°II47'56	-9°-8'-24	max. Earth dist.	673 May 28 j 09:00	10°II32'37	46.07129 AU
min. Earth dist.	664 Nov 21 j 12:06	1°II46'43	45.46444 AU				
direct	665 Feb 10 j 04:17	0°II47'13		conjunction	673 May 29 j 23:27	10°II34'55	-6°-26'-7
max. Earth dist.	665 May 20 j 04:31	2°II15'46	47.36629 AU	minimum elong	673 May 29 j 23:35	10°II34'56	6°26'07
				retrograde	673 Sep 09 j 06:42	12°II09'29	
conjunction	665 May 21 j 08:22	2°II17'24	-8°-37'-46	opposition	673 Nov 29 j 19:23	11°II07'41	-6°-34'-25
minimum elong	665 May 21 j 08:33	2°II17'25	8°37'47	min. Earth dist.	673 Dec 01 j 06:05	11°II05'57	43.99346 AU
retrograde	665 Aug 31 j 12:38	3°II49'34		direct	674 Feb 19 j 08:56	10°II05'34	
opposition	665 Nov 21 j 16:54	2°II48'42	-8°-52'-25	max. Earth dist.	674 May 29 j 17:15	11°II36'37	45.89116 AU
min. Earth dist.	665 Nov 22 j 18:04	2°II47'28	45.31295 AU				
direct	666 Feb 11 j 10:00	1°II47'49		conjunction	674 May 31 j 08:21	11°II38'59	-6°-8'-30
max. Earth dist.	666 May 21 j 10:23	3°II16'34	47.21467 AU	minimum elong	674 May 31 j 08:29	11°II38'59	6°08'31
				retrograde	674 Sep 10 j 12:49	13°II13'53	
conjunction	666 May 22 j 15:44	3°II18'18	-8°-22'-14	opposition	674 Dec 01 j 02:22	12°II11'55	-6°-15'-57
minimum elong	666 May 22 j 15:55	3°II18'18	8°22'15	min. Earth dist.	674 Dec 02 j 14:20	12°II10'07	43.80979 AU
retrograde	666 Sep 01 j 22:42	4°II50'43		direct	675 Feb 20 j 18:12	11°II09'36	
opposition	666 Nov 22 j 22:41	3°II49'43	-8°-36'-8	max. Earth dist.	675 May 31 j 00:12	12°II40'55	45.70660 AU
min. Earth dist.	666 Nov 24 j 01:41	3°II48'24	45.15868 AU				
direct	667 Feb 12 j 12:40	2°II48'41		conjunction	675 Jun 01 j 17:13	12°II43'24	-5°-50'-37
				minimum elong	675 Jun 01 j 17:21	12°II43'25	5°50'37
conjunction	667 May 23 j 23:14	4°II19'29	-8°-6'-27	retrograde	675 Sep 11 j 20:03	14°II18'39	
minimum elong	667 May 23 j 23:24	4°II19'29	8°06'28	opposition	675 Dec 02 j 09:33	13°II16'31	-5°-57'-11
max. Earth dist.	667 May 22 j 17:44	4°II17'45	47.06058 AU	min. Earth dist.	675 Dec 03 j 22:18	13°II14'40	43.62202 AU
retrograde	667 Sep 03 j 06:10	5°II52'09		direct	676 Feb 22 j 02:27	12°II13'59	
opposition	667 Nov 24 j 04:36	4°II51'03	-8°-19'-35	max. Earth dist.	676 May 31 j 07:39	13°II45'38	45.51794 AU
min. Earth dist.	667 Nov 25 j 07:29	4°II49'44	45.00195 AU				
direct	668 Feb 13 j 17:58	3°II49'52		conjunction	676 Jun 02 j 02:07	13°II48'13	-5°-32'-29
max. Earth dist.	668 May 22 j 23:08	5°II19'08	46.90405 AU	minimum elong	676 Jun 02 j 02:15	13°II48'13	5°32'30
				retrograde	676 Sep 12 j 05:08	15°II23'50	
conjunction	668 May 24 j 06:34	5°II20'59	-7°-50'-23	opposition	676 Dec 02 j 16:59	14°II21'31	-5°-38'-9
minimum elong	668 May 24 j 06:44	5°II21'00	7°50'24	min. Earth dist.	676 Dec 04 j 07:42	14°II19'34	43.43051 AU
retrograde	668 Sep 03 j 13:37	6°II53'56		direct	677 Feb 22 j 08:50	13°II18'46	
opposition	668 Nov 24 j 10:43	5°II52'44	-8°-2'-45	max. Earth dist.	677 Jun 01 j 16:26	14°II50'48	45.32593 AU
min. Earth dist.	668 Nov 25 j 14:59	5°II51'20	44.84288 AU				
direct	669 Feb 14 j 00:26	4°II51'25		conjunction	677 Jun 03 j 11:22	14°II53'25	-5°-14'-4
max. Earth dist.	669 May 24 j 06:47	6°II21'01	46.74495 AU	minimum elong	677 Jun 03 j 11:30	14°II53'25	5°14'05
				retrograde	677 Sep 13 j 15:07	16°II29'25	
conjunction	669 May 25 j 14:25	6°II22'53	-7°-34'-3	opposition	677 Dec 04 j 00:21	15°II26'55	-5°-18'-50
minimum elong	669 May 25 j 14:34	6°II22'54	7°34'04	min. Earth dist.	677 Dec 05 j 15:05	15°II24'58	43.23591 AU
retrograde	669 Sep 04 j 17:59	7°II56'08		direct	678 Feb 23 j 14:54	14°II23'56	
opposition	669 Nov 25 j 16:52	6°II54'49	-7°-45'-38	max. Earth dist.	678 Jun 02 j 23:42	15°II56'19	45.13096 AU
min. Earth dist.	669 Nov 26 j 22:16	6°II53'22	44.68096 AU				
direct	670 Feb 15 j 09:49	5°II53'23		conjunction	678 Jun 04 j 20:46	15°II59'04	-4°-55'-24
				minimum elong	678 Jun 04 j 20:53	15°II59'04	4°55'25
conjunction	670 May 26 j 22:23	7°II25'13	-7°-17'-27	retrograde	678 Sep 15 j 01:41	17°II35'28	
minimum elong	670 May 26 j 22:33	7°II25'14	7°17'28	opposition	678 Dec 05 j 08:07	16°II32'47	-4°-59'-13
max. Earth dist.	670 May 25 j 13:05	7°II23'14	46.58288 AU	min. Earth dist.	678 Dec 07 j 00:32	16°II30'44	43.03874 AU
retrograde	670 Sep 06 j 01:47	8°II58'47		direct	679 Feb 24 j 21:55	15°II29'35	
opposition	670 Nov 26 j 23:10	7°II57'23	-7°-28'-14	max. Earth dist.	679 Jun 04 j 09:19	17°II02'26	44.93351 AU
min. Earth dist.	670 Nov 28 j 05:08	7°II55'54	44.51576 AU				
direct	671 Feb 16 j 16:04	6°II55'47		conjunction	679 Jun 06 j 06:21	17°II05'12	-4°-36'-27
max. Earth dist.	671 May 26 j 19:35	8°II25'55	46.41686 AU	minimum elong	679 Jun 06 j 06:27	17°II05'13	4°36'27
				retrograde	679 Sep 16 j 09:02	18°II42'02	
conjunction	671 May 28 j 06:31	8°II28'00	-7°00'-35	opposition	679 Dec 06 j 16:03	17°II39'11	-4°-39'-18
minimum elong	671 May 28 j 06:40	8°II28'01	7°00'36	min. Earth dist.	679 Dec 08 j 08:58	17°II37'06	42.83925 AU
retrograde	671 Sep 07 j 10:47	10°II01'55		direct	680 Feb 26 j 08:33	16°II35'46	
opposition	671 Nov 28 j 05:46	9°II00'23	-7°-10'-34	max. Earth dist.	680 Jun 04 j 17:23	18°II09'01	44.73404 AU
min. Earth dist.	671 Nov 29 j 14:00	8°II58'48	44.34636 AU				
direct	672 Feb 17 j 21:10	7°II58'39		conjunction	680 Jun 06 j 16:04	18°II11'54	-4°-17'-13
max. Earth dist.	672 May 27 j 03:18	9°II29'07	46.24651 AU	minimum elong	680 Jun 06 j 16:10	18°II11'54	4°17'15
				retrograde	680 Sep 16 j 18:37	19°II49'11	
conjunction	672 May 28 j 14:57	9°II31'15	-6°-43'-29	opposition	680 Dec 07 j 00:05	18°II46'10	-4°-19'-5

min. Earth dist.	680 Dec 08 j 17:31	18°II44'03	42.63786 AU	conjunction	689 Jun 17 j 21:05	28°II42'32	-1°-11'-57
direct	681 Feb 26 j 16:57	17°II42'33		minimum elong	689 Jun 17 j 21:07	28°II42'32	1°11'58
max. Earth dist.	681 Jun 06 j 02:33	19°II16'16	44.53233 AU		689 Aug 13 j 05:02	0°☾	
				retrograde	689 Sep 28 j 00:28	0°☾24'35	
conjunction	681 Jun 08 j 02:10	19°II19'13	-3°-57'-43		689 Nov 13 j 06:12	30°RII	
minimum elong	681 Jun 08 j 02:16	19°II19'14	3°57'43	opposition	689 Dec 17 j 12:38	29°II19'39	-1°-4'-3
retrograde	681 Sep 18 j 03:33	20°II57'00		min. Earth dist.	689 Dec 19 j 16:28	29°II16'54	40.67739 AU
opposition	681 Dec 08 j 08:32	19°II53'49	-3°-58'-35	direct	690 Mar 09 j 02:11	28°II13'39	
min. Earth dist.	681 Dec 10 j 03:41	19°II51'36	42.43409 AU	max. Earth dist.	690 Jun 16 j 21:57	29°II51'57	42.56206 AU
direct	682 Feb 28 j 01:02	18°II50'00					
max. Earth dist.	682 Jun 07 j 12:22	20°II24'14	44.32814 AU	conjunction	690 Jun 19 j 09:36	29°II55'50	0°-50'-2
				minimum elong	690 Jun 19 j 09:37	29°II55'50	0°50'02
conjunction	682 Jun 09 j 12:35	20°II27'14	-3°-37'-56		690 Jun 22 j 01:43	0°☾	
minimum elong	682 Jun 09 j 12:41	20°II27'14	3°37'57	retrograde	690 Sep 29 j 14:44	1°☾38'29	
retrograde	682 Sep 19 j 15:13	22°II05'31		opposition	690 Dec 18 j 23:18	0°☾33'16	0°-40'-56
opposition	682 Dec 09 j 16:59	21°II02'11	-3°-37'-47	min. Earth dist.	690 Dec 21 j 04:10	0°☾30'27	40.44446 AU
min. Earth dist.	682 Dec 11 j 12:22	20°II59'57	42.22755 AU		691 Jan 15 j 04:28	30°RII	
direct	683 Mar 01 j 07:53	19°II58'09		direct	691 Mar 10 j 12:38	29°II26'56	
max. Earth dist.	683 Jun 08 j 20:40	21°II32'49	44.12067 AU		691 May 03 j 03:44	0°☾	
				max. Earth dist.	691 Jun 18 j 10:40	1°☾05'55	42.32847 AU
conjunction	683 Jun 10 j 23:13	21°II35'59	-3°-17'-53				
minimum elong	683 Jun 10 j 23:19	21°II35'59	3°17'53	conjunction	691 Jun 20 j 22:33	1°☾09'50	0°-27'-51
retrograde	683 Sep 21 j 05:38	23°II14'47		minimum elong	691 Jun 20 j 22:34	1°☾09'50	0°27'53
opposition	683 Dec 11 j 01:57	22°II11'16	-3°-16'-41	retrograde	691 Oct 01 j 01:16	2°☾53'06	
min. Earth dist.	683 Dec 12 j 23:23	22°II08'56	42.01762 AU	opposition	691 Dec 20 j 10:28	1°☾47'37	0°-17'-32
direct	684 Mar 01 j 13:23	21°II07'01		min. Earth dist.	691 Dec 22 j 16:13	1°☾44'44	40.21017 AU
max. Earth dist.	684 Jun 09 j 07:15	22°II42'15	43.90943 AU	direct	692 Mar 11 j 01:08	0°☾40'59	
				max. Earth dist.	692 Jun 18 j 22:58	2°☾20'36	42.09383 AU
conjunction	684 Jun 11 j 10:08	22°II45'27	-2°-57'-33				
minimum elong	684 Jun 11 j 10:13	22°II45'27	2°57'34	conjunction	692 Jun 21 j 11:34	2°☾24'36	0°-5'-28
retrograde	684 Sep 21 j 15:48	24°II24'46		minimum elong	692 Jun 21 j 11:34	2°☾24'36	0°05'28
opposition	684 Dec 11 j 11:08	23°II21'04	-2°-55'-18	behind sun begin	692 Jun 21 j 05:17	2°☾24'13	
min. Earth dist.	684 Dec 13 j 09:21	23°II18'41	41.80358 AU	behind sun end	692 Jun 21 j 17:51	2°☾24'59	
direct	685 Mar 02 j 23:39	22°II16'34		asc. node	692 Sep 17 j 06:14	4°☾05'59	
max. Earth dist.	685 Jun 10 j 16:09	23°II52'14	43.69401 AU	retrograde	692 Oct 01 j 13:12	4°☾08'32	
				opposition	692 Dec 20 j 21:51	3°☾02'48	0°06'09
conjunction	685 Jun 12 j 21:23	23°II55'36	-2°-36'-58	min. Earth dist.	692 Dec 23 j 03:33	2°☾59'54	39.97495 AU
minimum elong	685 Jun 12 j 21:27	23°II55'36	2°36'59	direct	693 Mar 12 j 12:54	1°☾55'51	
retrograde	685 Sep 23 j 02:11	25°II35'27		max. Earth dist.	693 Jun 20 j 11:07	3°☾36'07	41.85799 AU
opposition	685 Dec 12 j 20:27	24°II31'32	-2°-33'-38				
min. Earth dist.	685 Dec 14 j 20:00	24°II29'04	41.58545 AU	conjunction	693 Jun 23 j 01:11	3°☾40'14	0°17'19
direct	686 Mar 04 j 10:32	23°II26'46		minimum elong	693 Jun 23 j 01:11	3°☾40'14	0°17'18
max. Earth dist.	686 Jun 12 j 02:32	25°II02'56	43.47426 AU	retrograde	693 Oct 03 j 03:16	5°☾24'52	
				opposition	693 Dec 22 j 09:34	4°☾18'53	0°30'07
conjunction	686 Jun 14 j 09:03	25°II06'25	-2°-16'-7	min. Earth dist.	693 Dec 24 j 17:02	4°☾15'53	39.73859 AU
minimum elong	686 Jun 14 j 09:07	25°II06'25	2°16'08	direct	694 Mar 13 j 21:56	3°☾11'39	
retrograde	686 Sep 24 j 10:57	26°II46'48		max. Earth dist.	694 Jun 22 j 01:14	4°☾52'42	41.62087 AU
opposition	686 Dec 14 j 06:13	25°II42'39	-2°-11'-40				
min. Earth dist.	686 Dec 16 j 07:36	25°II40'04	41.36318 AU	conjunction	694 Jun 24 j 15:15	4°☾56'50	0°40'15
direct	687 Mar 05 j 22:02	24°II37'36		minimum elong	694 Jun 24 j 15:14	4°☾56'50	0°40'15
max. Earth dist.	687 Jun 13 j 13:10	26°II14'17	43.25071 AU	retrograde	694 Oct 04 j 17:51	6°☾42'13	
				opposition	694 Dec 23 j 21:41	5°☾35'59	0°54'22
conjunction	687 Jun 15 j 20:43	26°II17'50	-1°-55'00	min. Earth dist.	694 Dec 26 j 05:06	5°☾32'59	39.50070 AU
minimum elong	687 Jun 15 j 20:46	26°II17'51	1°55'01	direct	695 Mar 15 j 09:10	4°☾28'27	
retrograde	687 Sep 25 j 22:05	27°II58'46		max. Earth dist.	695 Jun 23 j 13:25	6°☾10'11	41.38177 AU
opposition	687 Dec 15 j 16:03	26°II54'22	-1°-49'-26				
min. Earth dist.	687 Dec 17 j 17:38	26°II51'46	41.13738 AU	conjunction	695 Jun 26 j 05:30	6°☾14'29	1°03'27
direct	688 Mar 06 j 07:12	25°II49'01		minimum elong	695 Jun 26 j 05:28	6°☾14'29	1°03'27
max. Earth dist.	688 Jun 13 j 23:07	27°II26'10	43.02371 AU	retrograde	695 Oct 06 j 10:49	8°☾00'37	
				opposition	695 Dec 25 j 10:14	6°☾54'09	1°18'53
conjunction	688 Jun 16 j 08:43	27°II29'52	-1°-33'-36	min. Earth dist.	695 Dec 27 j 19:16	6°☾51'02	39.26073 AU
minimum elong	688 Jun 16 j 08:45	27°II29'53	1°33'37	direct	696 Mar 15 j 20:18	5°☾46'18	
retrograde	688 Sep 26 j 11:14	29°II11'22		max. Earth dist.	696 Jun 24 j 04:02	7°☾28'51	41.14011 AU
opposition	688 Dec 16 j 02:12	28°II06'42	-1°-26'-53				
min. Earth dist.	688 Dec 18 j 05:49	28°II03'58	40.90861 AU	conjunction	696 Jun 26 j 20:27	7°☾33'13	1°26'54
direct	689 Mar 07 j 15:23	27°II01'01		minimum elong	696 Jun 26 j 20:24	7°☾33'13	1°26'54
max. Earth dist.	689 Jun 15 j 11:27	28°II38'48	42.79399 AU	retrograde	696 Oct 07 j 01:24	9°☾20'07	

opposition	696 Dec 25 j 23:10	8°☾13'23	1°43'41	max. Earth dist.	705 Jul 07 j 04:11	20°☾05'18	38.86717 AU
min. Earth dist.	696 Dec 28 j 09:17	8°☾10'12	39.01800 AU				
direct	697 Mar 17 j 11:05	7°☾05'13		conjunction	705 Jul 10 j 05:46	20°☾10'38	5°07'29
max. Earth dist.	697 Jun 25 j 17:29	8°☾48'30	40.89559 AU	minimum elong	705 Jul 10 j 05:36	20°☾10'38	5°07'29
				retrograde	705 Oct 20 j 11:11	22°☾05'25	
conjunction	697 Jun 28 j 11:44	8°☾53'01	1°50'34	opposition	706 Jan 07 j 15:16	20°☾55'45	5°37'23
minimum elong	697 Jun 28 j 11:41	8°☾53'01	1°50'34	min. Earth dist.	706 Jan 10 j 08:40	20°☾51'58	36.74777 AU
retrograde	697 Oct 08 j 17:40	10°☾40'43		direct	706 Mar 29 j 22:22	19°☾44'05	
opposition	697 Dec 27 j 12:30	9°☾33'42	2°08'44	max. Earth dist.	706 Jul 09 j 00:14	21°☾35'30	38.61188 AU
min. Earth dist.	697 Dec 29 j 23:17	9°☾30'27	38.77239 AU				
direct	698 Mar 19 j 00:38	8°☾25'11		conjunction	706 Jul 12 j 01:17	21°☾40'51	5°32'49
max. Earth dist.	698 Jun 27 j 07:50	10°☾09'14	40.64787 AU	minimum elong	706 Jul 12 j 01:05	21°☾40'50	5°32'49
				retrograde	706 Oct 22 j 07:10	23°☾36'40	
conjunction	698 Jun 30 j 03:33	10°☾13'53	2°14'29	opposition	707 Jan 09 j 08:50	22°☾26'40	6°04'17
minimum elong	698 Jun 30 j 03:29	10°☾13'53	2°14'29	min. Earth dist.	707 Jan 12 j 01:58	22°☾22'52	36.49394 AU
retrograde	698 Oct 10 j 07:05	12°☾02'24		direct	707 Mar 31 j 14:06	21°☾14'36	
opposition	698 Dec 29 j 02:21	10°☾55'05	2°34'02	max. Earth dist.	707 Jul 10 j 18:27	23°☾07'01	38.35641 AU
min. Earth dist.	698 Dec 31 j 15:03	10°☾51'43	38.52383 AU				
direct	699 Mar 20 j 13:53	9°☾46'13		conjunction	707 Jul 13 j 21:18	23°☾12'32	5°58'16
max. Earth dist.	699 Jun 28 j 23:34	11°☾31'06	40.39748 AU	minimum elong	707 Jul 13 j 21:07	23°☾12'31	5°58'17
				retrograde	707 Oct 24 j 05:32	25°☾09'25	
conjunction	699 Jul 01 j 19:44	11°☾35'49	2°38'37	opposition	708 Jan 11 j 03:04	23°☾59'04	6°31'18
minimum elong	699 Jul 01 j 19:39	11°☾35'49	2°38'37	min. Earth dist.	708 Jan 13 j 21:31	23°☾55'11	36.23993 AU
retrograde	699 Oct 11 j 23:07	13°☾25'09		direct	708 Apr 01 j 05:21	22°☾46'37	
opposition	699 Dec 30 j 16:30	12°☾17'31	2°59'35	max. Earth dist.	708 Jul 11 j 15:16	24°☾40'10	38.10021 AU
min. Earth dist.	700 Jan 02 j 05:14	12°☾14'08	38.27287 AU				
direct	700 Mar 21 j 02:50	11°☾08'16		conjunction	708 Jul 14 j 18:01	24°☾45'44	6°23'49
max. Earth dist.	700 Jun 29 j 13:52	12°☾53'54	40.14474 AU	minimum elong	708 Jul 14 j 17:49	24°☾45'43	6°23'49
				retrograde	708 Oct 25 j 03:12	26°☾43'42	
conjunction	700 Jul 02 j 12:09	12°☾58'48	3°02'58	opposition	709 Jan 11 j 21:59	25°☾33'00	6°58'27
minimum elong	700 Jul 02 j 12:03	12°☾58'48	3°02'58	min. Earth dist.	709 Jan 14 j 17:04	25°☾29'03	35.98494 AU
retrograde	700 Oct 12 j 17:43	14°☾48'59		direct	709 Apr 03 j 01:18	24°☾20'08	
opposition	700 Dec 31 j 07:09	13°☾41'01	3°25'23	max. Earth dist.	709 Jul 13 j 11:07	26°☾14'44	37.84293 AU
min. Earth dist.	701 Jan 02 j 21:41	13°☾37'31	38.02002 AU				
direct	701 Mar 22 j 14:00	12°☾31'22		conjunction	709 Jul 16 j 15:22	26°☾20'28	6°49'26
max. Earth dist.	701 Jul 01 j 07:06	14°☾17'56	39.89025 AU	minimum elong	709 Jul 16 j 15:09	26°☾20'27	6°49'27
				retrograde	709 Oct 27 j 03:02	28°☾19'31	
conjunction	701 Jul 04 j 05:16	14°☾22'52	3°27'32	opposition	710 Jan 13 j 17:21	27°☾08'27	7°25'41
minimum elong	701 Jul 04 j 05:09	14°☾22'51	3°27'32	min. Earth dist.	710 Jan 16 j 12:56	27°☾04'27	35.72895 AU
retrograde	701 Oct 14 j 10:35	16°☾13'54		direct	710 Apr 04 j 21:24	25°☾55'08	
opposition	702 Jan 01 j 22:06	15°☾05'35	3°51'24	max. Earth dist.	710 Jul 15 j 08:24	27°☾50'52	37.58432 AU
min. Earth dist.	702 Jan 04 j 12:52	15°☾02'03	37.76579 AU				
direct	702 Mar 24 j 05:51	13°☾55'32		conjunction	710 Jul 18 j 13:29	27°☾56'43	7°15'07
max. Earth dist.	702 Jul 02 j 22:54	15°☾42'56	39.63469 AU	minimum elong	710 Jul 18 j 13:15	27°☾56'42	7°15'07
				retrograde	710 Oct 29 j 00:36	29°☾56'53	
conjunction	702 Jul 05 j 22:39	15°☾48'01	3°52'16	opposition	711 Jan 15 j 13:37	28°☾45'25	7°52'59
minimum elong	702 Jul 05 j 22:31	15°☾48'00	3°52'16	min. Earth dist.	711 Jan 18 j 10:44	28°☾41'18	35.47186 AU
retrograde	702 Oct 16 j 06:05	17°☾39'56		direct	711 Apr 06 j 17:12	27°☾31'39	
opposition	703 Jan 03 j 13:37	16°☾31'17	4°17'37	max. Earth dist.	711 Jul 17 j 06:33	29°☾28'33	37.32486 AU
min. Earth dist.	703 Jan 06 j 05:02	16°☾27'41	37.51103 AU				
direct	703 Mar 25 j 22:14	15°☾20'49		conjunction	711 Jul 20 j 11:56	29°☾34'28	7°40'50
max. Earth dist.	703 Jul 04 j 16:34	17°☾09'11	39.37860 AU	minimum elong	711 Jul 20 j 11:40	29°☾34'27	7°40'50
					711 Aug 03 j 11:15	0°♂	
conjunction	703 Jul 07 j 16:28	17°☾14'19	4°17'11	retrograde	711 Oct 30 j 22:11	1°♂35'46	
minimum elong	703 Jul 07 j 16:20	17°☾14'18	4°17'11	opposition	712 Jan 17 j 10:19	0°♂23'55	8°20'19
retrograde	703 Oct 17 j 23:33	19°☾07'09		min. Earth dist.	712 Jan 20 j 07:08	0°♂19'46	35.21416 AU
opposition	704 Jan 05 j 05:45	17°☾58'09	4°44'02		712 Feb 03 j 07:24	30°♂☾	
min. Earth dist.	704 Jan 07 j 22:06	17°☾54'28	37.25615 AU	direct	712 Apr 07 j 13:53	29°☾09'40	
direct	704 Mar 26 j 15:26	16°☾47'17			712 Jun 08 j 21:14	0°♂	
max. Earth dist.	704 Jul 05 j 10:28	18°☾36'37	39.12274 AU	max. Earth dist.	712 Jul 18 j 04:11	1°♂07'39	37.06480 AU
conjunction	704 Jul 08 j 10:47	18°☾41'50	4°42'16	conjunction	712 Jul 21 j 11:09	1°♂13'45	8°06'33
minimum elong	704 Jul 08 j 10:38	18°☾41'49	4°42'15	minimum elong	712 Jul 21 j 10:53	1°♂13'44	8°06'32
retrograde	704 Oct 18 j 17:05	20°☾35'36		retrograde	712 Oct 31 j 21:14	3°♂16'12	
opposition	705 Jan 05 j 22:07	19°☾26'16	5°10'38	opposition	713 Jan 18 j 07:37	2°♂03'55	8°47'41
min. Earth dist.	705 Jan 08 j 14:04	19°☾22'35	37.00175 AU	min. Earth dist.	713 Jan 21 j 05:58	1°♂59'40	34.95640 AU
direct	705 Mar 28 j 07:46	18°☾15'00		direct	713 Apr 09 j 08:22	0°♂49'11	

max. Earth dist.	713 Jul 20 j 04:43	2°♏48'27	36.80490 AU	max. Earth dist.	721 Aug 04 j 03:19	17°♏18'00	34.80275 AU
conjunction	713 Jul 23 j 11:06	2°♏54'34	8°32'14	conjunction	721 Aug 07 j 10:29	17°♏24'41	11°51'17
minimum elong	713 Jul 23 j 10:48	2°♏54'33	8°32'15	minimum elong	721 Aug 07 j 10:06	17°♏24'40	11°51'18
retrograde	713 Nov 02 j 20:54	4°♏58'11		retrograde	721 Nov 18 j 04:29	19°♏38'52	
opposition	714 Jan 20 j 05:38	3°♏45'29	9°15'00	opposition	722 Feb 03 j 16:29	18°♏22'56	12°46'40
min. Earth dist.	714 Jan 23 j 03:39	3°♏41'13	34.69915 AU	min. Earth dist.	722 Feb 06 j 15:05	18°♏18'24	32.72977 AU
direct	714 Apr 11 j 05:38	2°♏30'15		direct	722 Apr 25 j 06:43	17°♏04'00	
max. Earth dist.	714 Jul 22 j 03:46	4°♏30'41	36.54581 AU	max. Earth dist.	722 Aug 06 j 10:57	19°♏15'49	34.56416 AU
conjunction	714 Jul 25 j 11:26	4°♏36'57	8°57'51	conjunction	722 Aug 09 j 16:59	19°♏22'28	12°14'42
minimum elong	714 Jul 25 j 11:08	4°♏36'56	8°57'51	minimum elong	722 Aug 09 j 16:37	19°♏22'26	12°14'41
retrograde	714 Nov 04 j 23:23	6°♏41'47		retrograde	722 Nov 20 j 11:14	21°♏38'02	
opposition	715 Jan 22 j 04:19	5°♏28'39	9°42'14	opposition	723 Feb 05 j 21:40	20°♏21'41	13°11'33
min. Earth dist.	715 Jan 25 j 02:58	5°♏24'19	34.44336 AU	min. Earth dist.	723 Feb 08 j 20:13	20°♏17'08	32.49547 AU
direct	715 Apr 13 j 02:35	4°♏12'55		direct	723 Apr 27 j 11:28	19°♏02'17	
max. Earth dist.	715 Jul 24 j 05:41	6°♏14'43	36.28836 AU	max. Earth dist.	723 Aug 08 j 17:32	21°♏15'30	34.32818 AU
conjunction	715 Jul 27 j 12:36	6°♏20'59	9°23'21	conjunction	723 Aug 12 j 00:09	21°♏22'16	12°37'37
minimum elong	715 Jul 27 j 12:17	6°♏20'58	9°23'21	minimum elong	723 Aug 11 j 23:45	21°♏22'14	12°37'37
retrograde	715 Nov 07 j 01:25	8°♏27'03		retrograde	723 Nov 22 j 20:58	23°♏39'14	
opposition	716 Jan 24 j 03:46	7°♏13'29	10°09'21	opposition	724 Feb 08 j 03:29	22°♏22'27	13°35'53
min. Earth dist.	716 Jan 27 j 02:31	7°♏09'07	34.18968 AU	min. Earth dist.	724 Feb 11 j 01:34	22°♏17'54	32.26405 AU
direct	716 Apr 14 j 03:04	5°♏57'16		direct	724 Apr 28 j 16:23	21°♏02'33	
max. Earth dist.	716 Jul 25 j 06:53	8°♏00'22	36.03345 AU	max. Earth dist.	724 Aug 10 j 02:12	23°♏17'17	34.09507 AU
conjunction	716 Jul 28 j 14:13	8°♏06'44	9°48'41	conjunction	724 Aug 13 j 08:14	23°♏24'04	12°59'58
minimum elong	716 Jul 28 j 13:53	8°♏06'43	9°48'40	minimum elong	724 Aug 13 j 07:51	23°♏24'02	12°59'58
retrograde	716 Nov 08 j 05:50	10°♏14'05		retrograde	724 Nov 24 j 05:58	25°♏42'25	
opposition	717 Jan 25 j 03:51	9°♏00'06	10°36'18	opposition	725 Feb 09 j 10:22	24°♏25'11	13°59'37
min. Earth dist.	717 Jan 28 j 01:57	8°♏55'45	33.93890 AU	min. Earth dist.	725 Feb 12 j 08:52	24°♏20'35	32.03574 AU
direct	717 Apr 16 j 03:10	7°♏43'24		direct	725 Apr 30 j 23:39	23°♏04'48	
max. Earth dist.	717 Jul 27 j 09:36	9°♏47'53	35.78137 AU	max. Earth dist.	725 Aug 12 j 11:31	25°♏21'01	33.86558 AU
conjunction	717 Jul 30 j 16:49	9°♏54'19	10°13'48	conjunction	725 Aug 15 j 17:00	25°♏27'50	13°21'42
minimum elong	717 Jul 30 j 16:29	9°♏54'17	10°13'48	minimum elong	725 Aug 15 j 16:36	25°♏27'47	13°21'42
retrograde	717 Nov 10 j 07:35	12°♏02'58		retrograde	725 Nov 26 j 17:03	27°♏47'32	
opposition	718 Jan 27 j 04:47	10°♏48'35	11°03'01	opposition	726 Feb 11 j 17:51	26°♏29'52	14°22'40
min. Earth dist.	718 Jan 30 j 03:38	10°♏44'09	33.69122 AU	min. Earth dist.	726 Feb 14 j 15:01	26°♏25'19	31.81139 AU
direct	718 Apr 18 j 02:54	9°♏31'27		direct	726 May 03 j 07:58	25°♏08'59	
max. Earth dist.	718 Jul 29 j 13:36	11°♏37'23	35.53258 AU	max. Earth dist.	726 Aug 14 j 21:25	27°♏26'40	33.64032 AU
conjunction	718 Aug 01 j 20:04	11°♏43'50	10°38'40	conjunction	726 Aug 18 j 02:33	27°♏33'31	13°42'43
minimum elong	718 Aug 01 j 19:43	11°♏43'48	10°38'39	minimum elong	726 Aug 18 j 02:10	27°♏33'29	13°42'43
retrograde	718 Nov 12 j 11:16	13°♏53'49		retrograde	726 Nov 29 j 01:54	29°♏54'36	
opposition	719 Jan 29 j 06:27	12°♏39'04	11°29'27	opposition	727 Feb 14 j 02:28	28°♏36'28	14°44'56
min. Earth dist.	719 Feb 01 j 04:14	12°♏34'40	33.44681 AU	min. Earth dist.	727 Feb 16 j 23:58	28°♏31'52	31.59179 AU
direct	719 Apr 20 j 03:50	11°♏21'29		direct	727 May 05 j 14:30	27°♏15'06	
max. Earth dist.	719 Jul 31 j 16:47	13°♏28'49	35.28673 AU	max. Earth dist.	727 Aug 17 j 09:26	29°♏34'22	33.42039 AU
conjunction	719 Aug 03 j 23:56	13°♏35'22	11°03'14	conjunction	727 Aug 20 j 12:40	29°♏41'07	14°02'57
minimum elong	719 Aug 03 j 23:34	13°♏35'20	11°03'14	minimum elong	727 Aug 20 j 12:17	29°♏41'05	14°02'58
	719 Sep 19 j 01:13	15°♏			727 Aug 29 j 07:47	0°♏	
retrograde	719 Nov 14 j 15:56	15°♏46'45		retrograde	727 Dec 01 j 12:10	2°♏03'34	
	720 Jan 12 j 04:50	15°♏		opposition	728 Feb 16 j 11:47	0°♏45'01	15°06'20
opposition	720 Jan 31 j 09:01	14°♏31'36	11°55'34	min. Earth dist.	728 Feb 19 j 07:29	0°♏40'30	31.37781 AU
min. Earth dist.	720 Feb 03 j 07:48	14°♏27'07	33.20534 AU		728 Mar 17 j 06:11	30°♏	
direct	720 Apr 21 j 02:10	13°♏13'35		direct	728 May 06 j 23:43	29°♏23'10	
	720 Jul 21 j 15:26	15°♏			728 Jun 25 j 05:44	0°♏	
max. Earth dist.	720 Aug 01 j 22:48	15°♏22'27	35.04358 AU	max. Earth dist.	728 Aug 18 j 20:36	1°♏43'53	33.20650 AU
conjunction	720 Aug 05 j 04:50	15°♏28'59	11°27'27	conjunction	728 Aug 21 j 23:40	1°♏50'40	14°22'19
minimum elong	720 Aug 05 j 04:28	15°♏28'57	11°27'26	minimum elong	728 Aug 21 j 23:17	1°♏50'38	14°22'18
retrograde	720 Nov 15 j 20:42	17°♏41'45		retrograde	728 Dec 03 j 00:00	4°♏14'30	
opposition	721 Feb 01 j 12:14	16°♏26'14	12°21'20	opposition	729 Feb 17 j 21:55	2°♏55'31	15°26'45
min. Earth dist.	721 Feb 04 j 10:19	16°♏21'46	32.96635 AU	min. Earth dist.	729 Feb 20 j 17:17	2°♏51'00	31.17035 AU
direct	721 Apr 23 j 04:48	15°♏07'46		direct	729 May 09 j 06:33	1°♏33'12	

max. Earth dist.	729 Aug 21 j 10:58	3° $\mathring{\text{M}}$ 55'34	32.99956 AU	minimum elong	737 Sep 12 j 13:06	22° $\mathring{\text{M}}$ 48'26	16°24'18
				retrograde	737 Dec 25 j 00:38	25° $\mathring{\text{M}}$ 23'39	
conjunction	729 Aug 24 j 11:34	4° $\mathring{\text{M}}$ 02'12	14°40'42	opposition	738 Mar 11 j 09:48	24° $\mathring{\text{M}}$ 01'48	17°33'25
minimum elong	729 Aug 24 j 11:12	4° $\mathring{\text{M}}$ 02'10	14°40'42	min. Earth dist.	738 Mar 13 j 16:58	23° $\mathring{\text{M}}$ 57'57	29.62200 AU
retrograde	729 Dec 05 j 11:26	6° $\mathring{\text{M}}$ 27'24		direct	738 May 30 j 09:05	22° $\mathring{\text{M}}$ 36'35	
opposition	730 Feb 20 j 09:07	5° $\mathring{\text{M}}$ 08'02	15°46'07	max. Earth dist.	738 Sep 12 j 22:11	25° $\mathring{\text{M}}$ 11'45	31.46488 AU
min. Earth dist.	730 Feb 23 j 02:46	5° $\mathring{\text{M}}$ 03'36	30.96988 AU				
direct	730 May 11 j 16:56	3° $\mathring{\text{M}}$ 45'20		conjunction	738 Sep 15 j 07:21	25° $\mathring{\text{M}}$ 17'22	16°30'46
max. Earth dist.	730 Aug 23 j 23:56	6° $\mathring{\text{M}}$ 09'09	32.80001 AU	minimum elong	738 Sep 15 j 07:11	25° $\mathring{\text{M}}$ 17'21	16°30'46
				retrograde	738 Dec 27 j 17:54	27° $\mathring{\text{M}}$ 53'32	
conjunction	730 Aug 26 j 23:59	6° $\mathring{\text{M}}$ 15'48	14°58'03	opposition	739 Mar 14 j 04:26	26° $\mathring{\text{M}}$ 31'25	17°39'45
minimum elong	730 Aug 26 j 23:38	6° $\mathring{\text{M}}$ 15'46	14°58'02	min. Earth dist.	739 Mar 16 j 08:58	26° $\mathring{\text{M}}$ 27'44	29.48687 AU
retrograde	730 Dec 08 j 01:45	8° $\mathring{\text{M}}$ 42'23		direct	739 Jun 02 j 04:19	25° $\mathring{\text{M}}$ 05'56	
opposition	731 Feb 22 j 21:08	7° $\mathring{\text{M}}$ 22'39	16°04'19	max. Earth dist.	739 Sep 15 j 18:02	27° $\mathring{\text{M}}$ 42'08	31.33339 AU
min. Earth dist.	731 Feb 25 j 13:32	7° $\mathring{\text{M}}$ 18'17	30.77688 AU				
direct	731 May 14 j 03:00	5° $\mathring{\text{M}}$ 59'34		conjunction	739 Sep 18 j 01:51	27° $\mathring{\text{M}}$ 47'38	16°35'34
max. Earth dist.	731 Aug 26 j 15:56	8° $\mathring{\text{M}}$ 25'03	32.60792 AU	minimum elong	739 Sep 18 j 01:43	27° $\mathring{\text{M}}$ 47'38	16°35'34
					739 Nov 23 j 03:37	0° $\underline{\text{A}}$	
conjunction	731 Aug 29 j 13:27	8° $\mathring{\text{M}}$ 31'31	15°14'16	retrograde	739 Dec 30 j 13:03	0° $\underline{\text{A}}$ 24'41	
minimum elong	731 Aug 29 j 13:06	8° $\mathring{\text{M}}$ 31'29	15°14'16		740 Feb 07 j 01:09	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$	
retrograde	731 Dec 10 j 15:20	10° $\mathring{\text{M}}$ 59'28		opposition	740 Mar 15 j 23:31	29° $\mathring{\text{M}}$ 02'18	17°44'14
opposition	732 Feb 25 j 10:02	9° $\mathring{\text{M}}$ 39'24	16°21'18	min. Earth dist.	740 Mar 18 j 02:12	28° $\mathring{\text{M}}$ 58'44	29.36104 AU
min. Earth dist.	732 Feb 28 j 01:33	9° $\mathring{\text{M}}$ 35'05	30.59106 AU	direct	740 Jun 03 j 21:19	27° $\mathring{\text{M}}$ 36'34	
direct	732 May 15 j 14:46	8° $\mathring{\text{M}}$ 15'59			740 Sep 11 j 19:37	0° $\underline{\text{A}}$	
max. Earth dist.	732 Aug 28 j 06:52	10° $\mathring{\text{M}}$ 42'56	32.42320 AU	max. Earth dist.	740 Sep 17 j 16:52	0° $\underline{\text{A}}$ 13'58	31.21182 AU
conjunction	732 Aug 31 j 03:32	10° $\mathring{\text{M}}$ 49'23	15°29'18	conjunction	740 Sep 19 j 20:53	0° $\underline{\text{A}}$ 19'08	16°38'36
minimum elong	732 Aug 31 j 03:13	10° $\mathring{\text{M}}$ 49'21	15°29'17	minimum elong	740 Sep 19 j 20:47	0° $\underline{\text{A}}$ 19'07	16°38'36
retrograde	732 Dec 12 j 08:17	13° $\mathring{\text{M}}$ 18'40		retrograde	741 Jan 01 j 07:36	2° $\underline{\text{A}}$ 56'59	
opposition	733 Feb 26 j 23:48	11° $\mathring{\text{M}}$ 58'18	16°36'59	opposition	741 Mar 18 j 19:25	1° $\underline{\text{A}}$ 34'21	17°46'48
min. Earth dist.	733 Mar 01 j 13:28	11° $\mathring{\text{M}}$ 54'05	30.41232 AU	min. Earth dist.	741 Mar 20 j 19:39	1° $\underline{\text{A}}$ 30'58	29.24507 AU
direct	733 May 18 j 03:30	10° $\mathring{\text{M}}$ 34'32		direct	741 Jun 06 j 16:07	0° $\underline{\text{A}}$ 08'26	
max. Earth dist.	733 Aug 30 j 23:47	13° $\mathring{\text{M}}$ 03'02	32.24537 AU	max. Earth dist.	741 Sep 20 j 13:58	2° $\underline{\text{A}}$ 46'44	31.10094 AU
conjunction	733 Sep 02 j 18:34	13° $\mathring{\text{M}}$ 09'21	15°43'04	conjunction	741 Sep 22 j 16:04	2° $\underline{\text{A}}$ 51'44	16°39'49
minimum elong	733 Sep 02 j 18:16	13° $\mathring{\text{M}}$ 09'19	15°43'05	minimum elong	741 Sep 22 j 16:01	2° $\underline{\text{A}}$ 51'43	16°39'50
retrograde	733 Dec 15 j 00:24	15° $\mathring{\text{M}}$ 39'57		retrograde	742 Jan 04 j 03:40	5° $\underline{\text{A}}$ 30'20	
opposition	734 Mar 01 j 14:38	14° $\mathring{\text{M}}$ 19'16	16°51'19	opposition	742 Mar 21 j 15:47	4° $\underline{\text{A}}$ 07'29	17°47'22
min. Earth dist.	734 Mar 04 j 03:54	14° $\mathring{\text{M}}$ 15'03	30.24025 AU	min. Earth dist.	742 Mar 23 j 13:02	4° $\underline{\text{A}}$ 04'18	29.13991 AU
direct	734 May 20 j 17:37	12° $\mathring{\text{M}}$ 55'12		direct	742 Jun 09 j 11:34	2° $\underline{\text{A}}$ 41'25	
max. Earth dist.	734 Sep 02 j 16:58	15° $\mathring{\text{M}}$ 25'08	32.07460 AU	max. Earth dist.	742 Sep 23 j 13:44	5° $\underline{\text{A}}$ 20'45	31.00136 AU
conjunction	734 Sep 05 j 10:14	15° $\mathring{\text{M}}$ 31'22	15°55'32	conjunction	742 Sep 25 j 11:49	5° $\underline{\text{A}}$ 25'22	16°39'10
minimum elong	734 Sep 05 j 09:57	15° $\mathring{\text{M}}$ 31'20	15°55'31	minimum elong	742 Sep 25 j 11:47	5° $\underline{\text{A}}$ 25'22	16°39'09
retrograde	734 Dec 17 j 18:43	18° $\mathring{\text{M}}$ 03'12		retrograde	743 Jan 06 j 22:35	8° $\underline{\text{A}}$ 04'37	
opposition	735 Mar 04 j 06:14	16° $\mathring{\text{M}}$ 42'14	17°04'11	opposition	743 Mar 24 j 12:46	6° $\underline{\text{A}}$ 41'37	17°45'54
min. Earth dist.	735 Mar 06 j 17:06	16° $\mathring{\text{M}}$ 38'10	30.07501 AU	min. Earth dist.	743 Mar 26 j 07:46	6° $\underline{\text{A}}$ 38'35	29.04582 AU
direct	735 May 23 j 09:39	15° $\mathring{\text{M}}$ 17'52		direct	743 Jun 12 j 08:10	5° $\underline{\text{A}}$ 15'27	
max. Earth dist.	735 Sep 05 j 10:44	17° $\mathring{\text{M}}$ 49'10	31.91076 AU	max. Earth dist.	743 Sep 26 j 11:49	7° $\underline{\text{A}}$ 55'33	30.91340 AU
conjunction	735 Sep 08 j 02:34	17° $\mathring{\text{M}}$ 55'18	16°06'36	conjunction	743 Sep 28 j 07:35	7° $\underline{\text{A}}$ 59'57	16°36'36
minimum elong	735 Sep 08 j 02:18	17° $\mathring{\text{M}}$ 55'17	16°06'36	minimum elong	743 Sep 28 j 07:37	7° $\underline{\text{A}}$ 59'57	16°36'36
retrograde	735 Dec 20 j 11:23	20° $\mathring{\text{M}}$ 28'20		retrograde	744 Jan 09 j 20:26	10° $\underline{\text{A}}$ 39'47	
opposition	736 Mar 05 j 22:44	19° $\mathring{\text{M}}$ 07'04	17°15'33	opposition	744 Mar 26 j 10:00	9° $\underline{\text{A}}$ 16'40	17°42'22
min. Earth dist.	736 Mar 08 j 09:17	19° $\mathring{\text{M}}$ 03'01	29.91664 AU	min. Earth dist.	744 Mar 28 j 01:23	9° $\underline{\text{A}}$ 13'53	28.96289 AU
direct	736 May 25 j 00:09	17° $\mathring{\text{M}}$ 42'24		direct	744 Jun 14 j 04:38	7° $\underline{\text{A}}$ 50'26	
max. Earth dist.	736 Sep 07 j 06:09	20° $\mathring{\text{M}}$ 15'06	31.75428 AU	max. Earth dist.	744 Sep 28 j 11:43	10° $\underline{\text{A}}$ 31'21	30.83667 AU
conjunction	736 Sep 09 j 19:38	20° $\mathring{\text{M}}$ 21'03	16°16'13	conjunction	744 Sep 30 j 03:53	10° $\underline{\text{A}}$ 35'24	16°32'07
minimum elong	736 Sep 09 j 19:24	20° $\mathring{\text{M}}$ 21'02	16°16'12	minimum elong	744 Sep 30 j 03:56	10° $\underline{\text{A}}$ 35'24	16°32'06
retrograde	736 Dec 22 j 06:03	22° $\mathring{\text{M}}$ 55'12		retrograde	745 Jan 11 j 16:28	13° $\underline{\text{A}}$ 15'43	
opposition	737 Mar 08 j 15:48	21° $\mathring{\text{M}}$ 33'38	17°25'20	opposition	745 Mar 29 j 07:44	11° $\underline{\text{A}}$ 52'30	17°36'45
min. Earth dist.	737 Mar 10 j 23:52	21° $\mathring{\text{M}}$ 29'44	29.76543 AU	min. Earth dist.	745 Mar 30 j 21:23	11° $\underline{\text{A}}$ 49'51	28.89075 AU
direct	737 May 27 j 17:42	20° $\mathring{\text{M}}$ 08'42		direct	745 Jun 17 j 01:46	10° $\underline{\text{A}}$ 26'15	
max. Earth dist.	737 Sep 10 j 00:56	22° $\mathring{\text{M}}$ 42'35	31.60539 AU	max. Earth dist.	745 Oct 01 j 10:51	13° $\underline{\text{A}}$ 07'46	30.77105 AU
conjunction	737 Sep 12 j 13:18	22° $\mathring{\text{M}}$ 48'28	16°24'18	conjunction	745 Oct 03 j 00:16	13° $\underline{\text{A}}$ 11'33	16°25'43

minimum elong	745 Oct 03 j 00:22	13° 11 '34	16°25'43	max. Earth dist.	753 Oct 23 j 06:35	4° 02 '12	30.62604 AU
retrograde	746 Jan 14 j 14:48	15° 52 '15		retrograde	754 Feb 04 j 07:47	6° 43 '09	
opposition	746 Apr 01 j 05:49	14° 28 '59	17°29'03	opposition	754 Apr 22 j 17:42	5° 19 '54	15°15'45
min. Earth dist.	746 Apr 02 j 15:44	14° 26 '35	28.82917 AU	min. Earth dist.	754 Apr 23 j 04:22	5° 19 '10	28.70684 AU
direct	746 Jun 20 j 01:12	13° 02 '44		direct	754 Jul 11 j 15:10	3° 54 '24	
max. Earth dist.	746 Oct 04 j 10:28	15° 44 '48	30.71603 AU				
conjunction	746 Oct 05 j 20:44	15° 48 '16	16°17'24	conjunction	754 Oct 26 j 12:31	6° 37 '18	14°05'01
minimum elong	746 Oct 05 j 20:52	15° 48 '16	16°17'23	minimum elong	754 Oct 26 j 12:52	6° 37 '20	14°05'01
retrograde	747 Jan 17 j 11:24	18° 29 '15		max. Earth dist.	754 Oct 26 j 03:51	6° 36 '25	30.65876 AU
opposition	747 Apr 04 j 04:20	17° 05 '55	17°19'18	retrograde	755 Feb 07 j 03:41	9° 16 '35	
min. Earth dist.	747 Apr 05 j 12:31	17° 03 '39	28.77785 AU	opposition	755 Apr 25 j 15:19	7° 53 '28	14°50'43
direct	747 Jun 22 j 22:34	15° 39 '42		min. Earth dist.	755 Apr 25 j 21:32	7° 53 '02	28.74220 AU
max. Earth dist.	747 Oct 07 j 10:21	18° 22 '10	30.67157 AU	direct	755 Jul 14 j 12:09	6° 28 '11	
conjunction	747 Oct 08 j 17:23	18° 25 '19	16°07'11	conjunction	755 Oct 29 j 07:00	9° 10 '19	13°40'51
minimum elong	747 Oct 08 j 17:34	18° 25 '20	16°07'11	minimum elong	755 Oct 29 j 07:24	9° 10 '21	13°40'50
retrograde	748 Jan 20 j 09:21	21° 06 '27		max. Earth dist.	755 Oct 29 j 02:50	9° 09 '53	30.70387 AU
opposition	748 Apr 06 j 02:43	19° 43 '06	17°07'31	retrograde	756 Feb 09 j 20:16	11° 49 '01	
min. Earth dist.	748 Apr 07 j 07:18	19° 41 '05	28.73652 AU	opposition	756 Apr 27 j 12:33	10° 26 '03	14°24'01
direct	748 Jun 24 j 22:27	18° 16 '55		min. Earth dist.	756 Apr 27 j 16:20	10° 25 '47	28.78970 AU
max. Earth dist.	748 Oct 09 j 09:27	20° 59 '37	30.63730 AU	direct	756 Jul 16 j 09:01	9° 01 '03	
conjunction	748 Oct 10 j 14:04	21° 02 '31	15°55'05	conjunction	756 Oct 31 j 00:55	11° 42 '19	13°15'12
minimum elong	748 Oct 10 j 14:15	21° 02 '32	15°55'05	minimum elong	756 Oct 31 j 01:17	11° 42 '22	13°15'12
retrograde	749 Jan 22 j 07:02	23° 43 '42		max. Earth dist.	756 Oct 30 j 23:31	11° 42 '11	30.76123 AU
opposition	749 Apr 09 j 01:30	22° 20 '19	16°53'43	retrograde	757 Feb 11 j 14:58	14° 20 '21	
min. Earth dist.	749 Apr 10 j 03:59	22° 18 '27	28.70521 AU	opposition	757 Apr 30 j 09:26	12° 57 '35	13°55'47
direct	749 Jun 27 j 20:46	20° 54 '12		min. Earth dist.	757 Apr 30 j 08:47	12° 57 '38	28.84905 AU
max. Earth dist.	749 Oct 12 j 09:42	23° 37 '06	30.61339 AU	direct	757 Jul 19 j 07:16	11° 32 '53	
conjunction	749 Oct 13 j 10:35	23° 39 '38	15°41'09	conjunction	757 Nov 02 j 18:16	14° 13 '15	12°48'11
minimum elong	749 Oct 13 j 10:50	23° 39 '39	15°41'09	minimum elong	757 Nov 02 j 18:40	14° 13 '18	12°48'11
retrograde	750 Jan 25 j 02:58	26° 20 '44		max. Earth dist.	757 Nov 02 j 20:54	14° 13 '31	30.83010 AU
opposition	750 Apr 12 j 00:15	24° 57 '21	16°37'56	retrograde	757 Nov 22 j 14:31	15° 00 '00	
min. Earth dist.	750 Apr 12 j 23:19	24° 55 '44	28.68385 AU	opposition	758 Feb 14 j 07:44	16° 50 '35	
direct	750 Jun 30 j 21:06	23° 31 '20		min. Earth dist.	758 May 03 j 06:04	15° 28 '01	13°26'07
max. Earth dist.	750 Oct 15 j 08:13	26° 14 '10	30.59987 AU	direct	758 May 03 j 03:06	15° 28 '13	28.91967 AU
conjunction	750 Oct 16 j 06:52	26° 16 '28	15°25'24		758 May 20 j 12:58	15° 00 '00	
minimum elong	750 Oct 16 j 07:07	26° 16 '29	15°25'24	direct	758 Jul 22 j 02:40	14° 03 '39	
retrograde	751 Jan 27 j 23:47	28° 57 '24			758 Sep 19 j 06:01	15° 00 '00	
opposition	751 Apr 14 j 22:52	27° 34 '01	16°20'12	conjunction	758 Nov 05 j 11:08	16° 43 '01	12°19'53
min. Earth dist.	751 Apr 15 j 19:12	27° 32 '35	28.67296 AU	minimum elong	758 Nov 05 j 11:31	16° 43 '03	12°19'54
direct	751 Jul 03 j 19:02	26° 08 '04		max. Earth dist.	758 Nov 05 j 16:49	16° 43 '35	30.91006 AU
max. Earth dist.	751 Oct 18 j 08:35	28° 50 '57	30.59719 AU	retrograde	759 Feb 17 j 01:27	19° 19 '32	
conjunction	751 Oct 19 j 02:56	28° 52 '48	15°07'52	opposition	759 May 06 j 01:58	17° 57 '13	12°55'08
minimum elong	751 Oct 19 j 03:14	28° 52 '50	15°07'52	min. Earth dist.	759 May 05 j 18:56	17° 57 '42	29.00089 AU
retrograde	751 Nov 16 j 13:58	0° 00 '00		direct	759 Jul 25 j 00:19	16° 33 '11	
opposition	752 Jan 30 j 18:58	1° 33 '27	16°00'34	conjunction	759 Nov 08 j 03:26	19° 11 '30	11°50'27
min. Earth dist.	752 Apr 16 j 21:22	0° 10 '05		minimum elong	759 Nov 08 j 03:51	19° 11 '32	11°50'26
direct	752 Apr 17 j 14:41	0° 08 '52	28.67268 AU	max. Earth dist.	759 Nov 08 j 12:08	19° 12 '21	31.00021 AU
	752 Apr 22 j 21:21	30° 00 '00		retrograde	760 Feb 19 j 18:50	21° 47 '10	
	752 Jul 05 j 18:31	28° 44 '16		opposition	760 May 07 j 21:31	20° 25 '04	12°22'58
	752 Sep 12 j 09:27	0° 00 '00		min. Earth dist.	760 May 07 j 12:09	20° 25 '43	29.09213 AU
conjunction	752 Oct 20 j 22:30	1° 28 '28	14°48'35	direct	760 Jul 26 j 20:18	19° 01 '23	
minimum elong	752 Oct 20 j 22:49	1° 28 '30	14°48'35	conjunction	760 Nov 09 j 19:12	21° 38 '34	11°19'56
max. Earth dist.	752 Oct 20 j 06:32	1° 26 '51	30.60568 AU	minimum elong	760 Nov 09 j 19:35	21° 38 '37	11°19'56
retrograde	753 Feb 01 j 14:40	4° 08 '45		max. Earth dist.	760 Nov 10 j 07:11	21° 39 '45	31.10008 AU
opposition	753 Apr 19 j 19:33	2° 45 '25	15°39'04	retrograde	761 Feb 21 j 10:19	24° 13 '18	
min. Earth dist.	753 Apr 20 j 09:10	2° 44 '28	28.68383 AU	opposition	761 May 10 j 16:26	22° 51 '28	11°49'44
direct	753 Jul 08 j 16:33	1° 19 '44		min. Earth dist.	761 May 10 j 03:46	22° 52 '19	29.19266 AU
conjunction	753 Oct 23 j 17:52	4° 03 '20	14°27'37	direct	761 Jul 29 j 17:37	21° 28 '07	
minimum elong	753 Oct 23 j 18:13	4° 03 '22	14°27'37	conjunction	761 Nov 12 j 10:18	24° 04 '07	10°48'30
				minimum elong	761 Nov 12 j 10:41	24° 04 '09	10°48'29

max. Earth dist.	761 Nov 13 j 00:31	24° ℓ 05'30	31.20899 AU	max. Earth dist.	769 Dec 01 j 22:11	12° ♂ 26'30	32.39893 AU
retrograde	762 Feb 24 j 01:50	26° ℓ 37'52		retrograde	770 Mar 13 j 18:59	14° ♂ 47'45	
opposition	762 May 13 j 10:51	25° ℓ 16'15	11°15'32	min. Earth dist.	770 May 30 j 20:39	13° ♂ 30'52	30.50229 AU
min. Earth dist.	762 May 12 j 19:21	25° ℓ 17'18	29.30232 AU	opposition	770 Jun 01 j 11:21	13° ♂ 28'22	6°19'41
direct	762 Aug 01 j 11:43	23° ℓ 53'16		direct	770 Aug 20 j 19:07	12° ♂ 08'24	
conjunction	762 Nov 15 j 00:46	26° ℓ 28'00	10°16'12	conjunction	770 Dec 02 j 17:12	14° ♂ 32'19	5°38'24
minimum elong	762 Nov 15 j 01:08	26° ℓ 28'02	10°16'12	minimum elong	770 Dec 02 j 17:25	14° ♂ 32'20	5°38'25
max. Earth dist.	762 Nov 15 j 18:40	26° ℓ 29'44	31.32674 AU	max. Earth dist.	770 Dec 04 j 08:40	14° ♂ 35'55	32.58671 AU
retrograde	763 Feb 26 j 15:34	29° ℓ 00'41		retrograde	771 Mar 16 j 04:47	16° ♂ 55'52	
min. Earth dist.	763 May 15 j 10:29	27° ℓ 40'32	29.42056 AU	min. Earth dist.	771 Jun 02 j 06:08	15° ♂ 39'29	30.69149 AU
opposition	763 May 16 j 04:32	27° ℓ 39'19	10°40'29	opposition	771 Jun 03 j 23:09	15° ♂ 36'51	5°41'23
direct	763 Aug 04 j 08:29	26° ℓ 16'40		direct	771 Aug 23 j 06:44	14° ♂ 17'21	
conjunction	763 Nov 17 j 14:27	28° ℓ 50'06	9°43'10	conjunction	771 Dec 05 j 01:11	16° ♂ 39'56	5°02'34
minimum elong	763 Nov 17 j 14:49	28° ℓ 50'08	9°43'09	minimum elong	771 Dec 05 j 01:23	16° ♂ 39'57	5°02'33
max. Earth dist.	763 Nov 18 j 10:05	28° ℓ 51'59	31.45297 AU	max. Earth dist.	771 Dec 06 j 19:38	16° ♂ 43'46	32.78142 AU
	763 Dec 19 j 00:56	0° ♂		retrograde	772 Mar 17 j 12:38	19° ♂ 02'19	
retrograde	764 Feb 29 j 05:36	1° ♂ 21'41		min. Earth dist.	772 Jun 03 j 15:10	17° ♂ 46'25	30.88722 AU
opposition	764 May 17 j 21:18	0° ♂ 00'33	10°04'42	opposition	772 Jun 05 j 10:05	17° ♂ 43'41	5°03'05
min. Earth dist.	764 May 16 j 23:50	0° ♂ 01'59	29.54755 AU	direct	772 Aug 24 j 20:20	16° ♂ 24'38	
	764 May 18 j 05:32	30° ♂		conjunction	772 Dec 06 j 08:21	18° ♂ 45'53	4°26'46
direct	764 Aug 06 j 01:57	28° ℓ 38'13		minimum elong	772 Dec 06 j 08:31	18° ♂ 45'54	4°26'46
	764 Oct 18 j 06:03	0° ♂		max. Earth dist.	772 Dec 08 j 03:57	18° ♂ 49'49	32.98208 AU
conjunction	764 Nov 19 j 03:31	1° ♂ 10'19	9°09'28	retrograde	773 Mar 19 j 21:11	21° ♂ 07'09	
minimum elong	764 Nov 19 j 03:51	1° ♂ 10'21	9°09'28	min. Earth dist.	773 Jun 05 j 22:45	19° ♂ 51'46	31.08894 AU
max. Earth dist.	764 Nov 20 j 03:01	1° ♂ 12'34	31.58785 AU	opposition	773 Jun 07 j 20:29	19° ♂ 48'52	4°24'54
retrograde	765 Mar 02 j 15:42	3° ♂ 40'46		direct	773 Aug 27 j 06:34	18° ♂ 30'16	
opposition	765 May 20 j 13:37	2° ♂ 19'52	9°28'15	conjunction	773 Dec 08 j 14:56	20° ♂ 50'12	3°51'03
min. Earth dist.	765 May 19 j 14:06	2° ♂ 21'26	29.68340 AU	minimum elong	773 Dec 08 j 15:05	20° ♂ 50'13	3°51'03
direct	765 Aug 08 j 19:53	0° ♂ 57'53		max. Earth dist.	773 Dec 10 j 13:29	20° ♂ 54'21	33.18800 AU
conjunction	765 Nov 21 j 15:30	3° ♂ 28'36	8°35'12	retrograde	774 Mar 22 j 01:24	23° ♂ 10'19	
minimum elong	765 Nov 21 j 15:50	3° ♂ 28'38	8°35'11	min. Earth dist.	774 Jun 08 j 07:33	21° ♂ 55'21	31.29569 AU
max. Earth dist.	765 Nov 22 j 16:57	3° ♂ 31'01	31.73170 AU	opposition	774 Jun 10 j 06:15	21° ♂ 52'23	3°46'52
retrograde	766 Mar 05 j 03:34	5° ♂ 57'54		direct	774 Aug 29 j 18:12	20° ♂ 34'13	
min. Earth dist.	766 May 22 j 01:32	4° ♂ 39'05	29.82860 AU	conjunction	774 Dec 10 j 20:52	22° ♂ 52'49	3°15'31
opposition	766 May 23 j 05:05	4° ♂ 37'15	8°51'16	minimum elong	774 Dec 10 j 20:59	22° ♂ 52'50	3°15'32
direct	766 Aug 11 j 11:51	3° ♂ 15'37		max. Earth dist.	774 Dec 12 j 20:05	22° ♂ 57'01	33.39848 AU
conjunction	766 Nov 24 j 02:59	5° ♂ 44'57	8°00'27	retrograde	775 Mar 24 j 07:00	25° ♂ 11'47	
minimum elong	766 Nov 24 j 03:18	5° ♂ 44'59	8°00'28	min. Earth dist.	775 Jun 10 j 13:31	23° ♂ 57'18	31.50698 AU
max. Earth dist.	766 Nov 25 j 08:17	5° ♂ 47'43	31.88477 AU	opposition	775 Jun 12 j 14:58	23° ♂ 54'12	3°09'05
retrograde	767 Mar 07 j 13:14	8° ♂ 13'06		direct	775 Sep 01 j 03:47	22° ♂ 36'26	
opposition	767 May 25 j 19:45	6° ♂ 52'44	8°13'49	conjunction	775 Dec 13 j 02:11	24° ♂ 53'43	2°40'11
min. Earth dist.	767 May 24 j 14:18	6° ♂ 54'40	29.98335 AU	minimum elong	775 Dec 13 j 02:17	24° ♂ 53'44	2°40'11
direct	767 Aug 14 j 02:19	5° ♂ 31'28		max. Earth dist.	775 Dec 15 j 03:50	24° ♂ 58'05	33.61296 AU
conjunction	767 Nov 26 j 13:38	7° ♂ 59'26	7°25'18	retrograde	776 Mar 25 j 10:45	27° ♂ 11'31	
minimum elong	767 Nov 26 j 13:56	7° ♂ 59'28	7°25'18	min. Earth dist.	776 Jun 11 j 21:05	25° ♂ 57'23	31.72242 AU
max. Earth dist.	767 Nov 27 j 21:12	8° ♂ 02'23	32.04730 AU	opposition	776 Jun 13 j 23:15	25° ♂ 54'15	2°31'35
retrograde	768 Mar 08 j 23:38	10° ♂ 26'25		direct	776 Sep 02 j 12:09	24° ♂ 36'53	
min. Earth dist.	768 May 26 j 00:08	9° ♂ 08'33	30.14750 AU	conjunction	776 Dec 14 j 06:37	26° ♂ 52'49	2°05'08
opposition	768 May 27 j 09:36	9° ♂ 06'21	7°36'00	minimum elong	776 Dec 14 j 06:42	26° ♂ 52'50	2°05'09
direct	768 Aug 15 j 17:23	7° ♂ 45'30		max. Earth dist.	776 Dec 16 j 09:32	26° ♂ 57'16	33.83143 AU
conjunction	768 Nov 27 j 23:31	10° ♂ 12'07	6°49'51	retrograde	777 Mar 27 j 14:33	29° ♂ 09'28	
minimum elong	768 Nov 27 j 23:47	10° ♂ 12'08	6°49'52	min. Earth dist.	777 Jun 14 j 01:49	27° ♂ 55'48	31.94203 AU
max. Earth dist.	768 Nov 29 j 10:13	10° ♂ 15'20	32.21878 AU	opposition	777 Jun 16 j 06:38	27° ♂ 52'31	1°54'26
retrograde	769 Mar 11 j 09:42	12° ♂ 37'57		direct	777 Sep 04 j 20:38	26° ♂ 35'31	
min. Earth dist.	769 May 28 j 11:20	11° ♂ 20'32	30.32073 AU	conjunction	777 Dec 16 j 10:23	28° ♂ 50'08	1°30'25
opposition	769 May 29 j 22:55	11° ♂ 18'13	6°57'55	minimum elong	777 Dec 16 j 10:26	28° ♂ 50'09	1°30'24
direct	769 Aug 18 j 05:42	9° ♂ 57'48		max. Earth dist.	777 Dec 18 j 15:10	28° ♂ 54'42	34.05394 AU
conjunction	769 Nov 30 j 08:47	12° ♂ 23'03	6°14'12		778 Jan 20 j 19:34	0° ♂	
minimum elong	769 Nov 30 j 09:02	12° ♂ 23'05	6°14'11	retrograde	778 Mar 29 j 19:17	1° ♂ 05'38	

	778 Jun 11 j 02:02	30° 30 ' 30		max. Earth dist.	786 Jan 02 j 11:29	13° 30 ' 35 ' 42	35.98324 AU
min. Earth dist.	778 Jun 16 j 07:12	29° 30 ' 52 ' 19	32.16631 AU	retrograde	786 Apr 13 j 01:38	15° 30 ' 37 ' 31	
opposition	778 Jun 18 j 13:24	29° 30 ' 48 ' 58	1°17'40	min. Earth dist.	786 Jul 01 j 00:26	14° 30 ' 27 ' 25	34.11122 AU
direct	778 Sep 07 j 01:47	28° 30 ' 32 ' 21		opposition	786 Jul 03 j 18:34	14° 30 ' 23 ' 30	-3°-17'-54
	778 Nov 25 j 22:01	0° 30		direct	786 Sep 22 j 12:12	13° 30 ' 10 ' 02	
conjunction	778 Dec 18 j 13:30	0° 30 ' 45 ' 40	0°56'02	conjunction	787 Jan 01 j 16:59	15° 30 ' 14 ' 03	-3°-21'-55
minimum elong	778 Dec 18 j 13:32	0° 30 ' 45 ' 40	0°56'02	minimum elong	787 Jan 01 j 16:53	15° 30 ' 14 ' 03	3°21'56
max. Earth dist.	778 Dec 20 j 20:25	0° 30 ' 50 ' 23	34.28106 AU	max. Earth dist.	787 Jan 04 j 10:07	15° 30 ' 19 ' 18	36.23515 AU
retrograde	779 Mar 31 j 21:49	3° 30 ' 00 ' 02		retrograde	787 Apr 15 j 02:36	17° 30 ' 20 ' 11	
min. Earth dist.	779 Jun 18 j 11:10	1° 30 ' 47 ' 07	32.39532 AU	min. Earth dist.	787 Jul 03 j 00:22	16° 30 ' 10 ' 26	34.36450 AU
opposition	779 Jun 20 j 19:17	1° 30 ' 43 ' 40	0°41'20	opposition	787 Jul 05 j 19:32	16° 30 ' 06 ' 29	-3°-49'-37
direct	779 Sep 09 j 08:30	0° 30 ' 27 ' 25		direct	787 Sep 24 j 11:44	14° 30 ' 53 ' 23	
conjunction	779 Dec 20 j 15:51	2° 30 ' 39 ' 28	0°22'05	conjunction	788 Jan 03 j 15:11	16° 30 ' 56 ' 20	-3°-51'-40
minimum elong	779 Dec 20 j 15:52	2° 30 ' 39 ' 28	0°22'04	minimum elong	788 Jan 03 j 15:03	16° 30 ' 56 ' 19	3°51'42
max. Earth dist.	779 Dec 22 j 23:52	2° 30 ' 44 ' 14	34.51278 AU	max. Earth dist.	788 Jan 06 j 09:54	17° 30 ' 01 ' 40	36.48729 AU
retrograde	780 Apr 02 j 01:31	4° 30 ' 52 ' 43		retrograde	788 Apr 16 j 00:12	19° 30 ' 01 ' 30	
min. Earth dist.	780 Jun 19 j 14:06	3° 30 ' 40 ' 14	32.62937 AU	min. Earth dist.	788 Jul 04 j 00:45	17° 30 ' 52 ' 01	34.61782 AU
opposition	780 Jun 22 j 00:28	3° 30 ' 36 ' 41	0°05'28	opposition	788 Jul 06 j 19:52	17° 30 ' 48 ' 06	-4°-20'-42
desc. node	780 Aug 17 j 11:30	2° 30 ' 29 ' 14		direct	788 Sep 25 j 13:27	16° 30 ' 35 ' 20	
direct	780 Sep 10 j 13:46	2° 30 ' 20 ' 49		conjunction	789 Jan 04 j 12:45	18° 30 ' 37 ' 14	-4°-20'-50
conjunction	780 Dec 21 j 17:47	4° 30 ' 31 ' 39	0°-11'-30	minimum elong	789 Jan 04 j 12:37	18° 30 ' 37 ' 13	4°20'51
minimum elong	780 Dec 21 j 17:47	4° 30 ' 31 ' 39	0°11'31	max. Earth dist.	789 Jan 07 j 07:10	18° 30 ' 42 ' 30	36.73948 AU
behind sun begin	780 Dec 21 j 13:08	4° 30 ' 31 ' 16		retrograde	789 Apr 17 j 21:56	20° 30 ' 41 ' 27	
behind sun end	780 Dec 21 j 22:25	4° 30 ' 32 ' 01		min. Earth dist.	789 Jul 05 j 22:46	19° 30 ' 32 ' 20	34.87148 AU
max. Earth dist.	780 Dec 24 j 04:33	4° 30 ' 36 ' 36	34.74928 AU	opposition	789 Jul 08 j 19:40	19° 30 ' 28 ' 20	-4°-51'-6
retrograde	781 Apr 04 j 02:42	6° 30 ' 43 ' 48		direct	789 Sep 27 j 13:31	18° 30 ' 15 ' 53	
min. Earth dist.	781 Jun 21 j 17:39	5° 30 ' 31 ' 42	32.86811 AU	conjunction	790 Jan 06 j 09:43	20° 30 ' 16 ' 45	-4°-49'-22
opposition	781 Jun 24 j 05:08	5° 30 ' 28 ' 05	0°-29'-52	minimum elong	790 Jan 06 j 09:34	20° 30 ' 16 ' 44	4°49'23
direct	781 Sep 12 j 20:50	4° 30 ' 12 ' 38		max. Earth dist.	790 Jan 09 j 05:54	20° 30 ' 22 ' 07	36.99190 AU
conjunction	781 Dec 23 j 18:51	6° 30 ' 22 ' 16	0°-44'-33	retrograde	790 Apr 19 j 16:25	22° 30 ' 20 ' 02	
minimum elong	781 Dec 23 j 18:50	6° 30 ' 22 ' 15	0°44'34	min. Earth dist.	790 Jul 07 j 22:17	21° 30 ' 11 ' 09	35.12571 AU
max. Earth dist.	781 Dec 26 j 06:16	6° 30 ' 27 ' 14	34.99012 AU	opposition	790 Jul 10 j 18:56	21° 30 ' 07 ' 10	-5°-20'-49
retrograde	782 Apr 06 j 05:15	8° 30 ' 33 ' 22		direct	790 Sep 29 j 15:14	19° 30 ' 55 ' 02	
min. Earth dist.	782 Jun 23 j 18:54	7° 30 ' 21 ' 44	33.11117 AU	conjunction	791 Jan 08 j 06:15	21° 30 ' 54 ' 53	-5°-17'-17
opposition	782 Jun 26 j 09:03	7° 30 ' 17 ' 59	-1°-4'-40	minimum elong	791 Jan 08 j 06:06	21° 30 ' 54 ' 52	5°17'18
direct	782 Sep 15 j 00:53	6° 30 ' 02 ' 56		max. Earth dist.	791 Jan 11 j 02:39	22° 30 ' 00 ' 14	37.24510 AU
conjunction	782 Dec 25 j 19:36	8° 30 ' 11 ' 24	-1°-17'-7	retrograde	791 Apr 21 j 11:40	23° 30 ' 57 ' 15	
minimum elong	782 Dec 25 j 19:33	8° 30 ' 11 ' 23	1°17'07	min. Earth dist.	791 Jul 09 j 18:58	22° 30 ' 48 ' 43	35.38097 AU
max. Earth dist.	782 Dec 28 j 09:25	8° 30 ' 16 ' 32	35.23466 AU	opposition	791 Jul 12 j 17:18	22° 30 ' 44 ' 40	-5°-49'-51
retrograde	783 Apr 08 j 03:18	10° 30 ' 21 ' 28		direct	791 Oct 01 j 14:52	21° 30 ' 32 ' 51	
min. Earth dist.	783 Jun 25 j 21:50	9° 30 ' 10 ' 11	33.35778 AU	conjunction	792 Jan 10 j 02:12	23° 30 ' 31 ' 43	-5°-44'-34
opposition	783 Jun 28 j 12:16	9° 30 ' 06 ' 26	-1°-38'-53	minimum elong	792 Jan 10 j 02:02	23° 30 ' 31 ' 42	5°44'35
direct	783 Sep 17 j 05:33	7° 30 ' 51 ' 48		max. Earth dist.	792 Jan 12 j 23:41	23° 30 ' 37 ' 07	37.49937 AU
conjunction	783 Dec 27 j 19:44	9° 30 ' 59 ' 06	-1°-49'-9	retrograde	792 Apr 22 j 08:04	25° 30 ' 33 ' 12	
minimum elong	783 Dec 27 j 19:40	9° 30 ' 59 ' 06	1°49'10	min. Earth dist.	792 Jul 10 j 16:41	24° 30 ' 24 ' 57	35.63774 AU
max. Earth dist.	783 Dec 30 j 10:09	10° 30 ' 04 ' 15	35.48226 AU	opposition	792 Jul 13 j 15:26	24° 30 ' 20 ' 54	-6°-18'-11
retrograde	784 Apr 09 j 02:37	12° 30 ' 08 ' 09		direct	792 Oct 02 j 12:08	23° 30 ' 09 ' 25	
min. Earth dist.	784 Jun 26 j 22:19	10° 30 ' 57 ' 20	33.60715 AU	conjunction	793 Jan 10 j 21:40	25° 30 ' 07 ' 19	-6°-11'-12
opposition	784 Jun 29 j 14:53	10° 30 ' 53 ' 29	-2°-12'-31	minimum elong	793 Jan 10 j 21:30	25° 30 ' 07 ' 18	6°11'14
direct	784 Sep 18 j 08:58	9° 30 ' 39 ' 15		max. Earth dist.	793 Jan 13 j 20:33	25° 30 ' 12 ' 47	37.75517 AU
conjunction	784 Dec 28 j 19:12	11° 30 ' 45 ' 26	-2°-20'-38	retrograde	793 Apr 24 j 03:56	27° 30 ' 07 ' 57	
minimum elong	784 Dec 28 j 19:07	11° 30 ' 45 ' 26	2°20'39	min. Earth dist.	793 Jul 12 j 13:09	26° 30 ' 00 ' 02	35.89590 AU
max. Earth dist.	784 Dec 31 j 11:08	11° 30 ' 50 ' 40	35.73196 AU	opposition	793 Jul 15 j 12:58	25° 30 ' 55 ' 56	-6°-45'-49
retrograde	785 Apr 11 j 02:41	13° 30 ' 53 ' 31		direct	793 Oct 04 j 09:41	24° 30 ' 44 ' 47	
min. Earth dist.	785 Jun 29 j 00:03	12° 30 ' 43 ' 02	33.85861 AU	conjunction	794 Jan 12 j 16:40	26° 30 ' 41 ' 46	-6°-37'-12
opposition	785 Jul 01 j 17:08	12° 30 ' 39 ' 10	-2°-45'-31	minimum elong	794 Jan 12 j 16:29	26° 30 ' 41 ' 46	6°37'12
direct	785 Sep 20 j 09:44	11° 30 ' 25 ' 20		max. Earth dist.	794 Jan 15 j 15:37	26° 30 ' 47 ' 12	38.01225 AU
conjunction	785 Dec 30 j 18:25	13° 30 ' 30 ' 25	-2°-51'-34	retrograde	794 Apr 26 j 02:08	28° 30 ' 41 ' 35	
minimum elong	785 Dec 30 j 18:19	13° 30 ' 30 ' 24	2°51'35	min. Earth dist.	794 Jul 14 j 08:51	27° 30 ' 34 ' 00	36.15548 AU

opposition	794 Jul 17 j 09:57	27°☾29'52	-7°-12'-44	retrograde	802 May 07 j 20:00	10°☾35'07	
direct	794 Oct 06 j 03:56	26°☾19'03		min. Earth dist.	802 Jul 26 j 16:18	9°☾29'37	38.21165 AU
				opposition	802 Jul 29 j 18:10	9°☾25'34	-10°-23'-31
conjunction	795 Jan 14 j 11:23	28°☾15'10	-7°-2'-32	direct	802 Oct 18 j 14:52	8°☾17'10	
minimum elong	795 Jan 14 j 11:12	28°☾15'09	7°02'33				
max. Earth dist.	795 Jan 17 j 12:05	28°☾20'41	38.27040 AU	conjunction	803 Jan 26 j 03:18	10°☾06'46	-10°-2'-36
	795 Mar 26 j 00:39	0°☾		minimum elong	803 Jan 26 j 03:05	10°☾06'45	10°02'38
retrograde	795 Apr 27 j 20:20	0°☾14'10		max. Earth dist.	803 Jan 29 j 05:00	10°☾12'06	40.30480 AU
	795 May 31 j 07:27	30°☾		retrograde	803 May 09 j 09:59	11°☾59'46	
min. Earth dist.	795 Jul 16 j 05:38	29°☾06'52	36.41577 AU	min. Earth dist.	803 Jul 28 j 08:09	10°☾54'32	38.46124 AU
opposition	795 Jul 19 j 06:30	29°☾02'46	-7°-38'-57	opposition	803 Jul 31 j 11:08	10°☾50'26	-10°-44'-24
direct	795 Oct 08 j 00:59	27°☾52'17		direct	803 Oct 20 j 09:41	9°☾42'16	
conjunction	796 Jan 16 j 05:31	29°☾47'33	-7°-27'-14	conjunction	804 Jan 27 j 18:31	11°☾31'08	-10°-22'-21
minimum elong	796 Jan 16 j 05:19	29°☾47'32	7°27'15	minimum elong	804 Jan 27 j 18:18	11°☾31'07	10°22'22
max. Earth dist.	796 Jan 19 j 05:51	29°☾53'01	38.52900 AU	max. Earth dist.	804 Jan 30 j 20:55	11°☾36'28	40.55166 AU
	796 Jan 23 j 02:42	0°☾		retrograde	804 May 10 j 00:17	13°☾23'26	
retrograde	796 Apr 28 j 13:55	1°☾45'46		min. Earth dist.	804 Jul 29 j 01:19	12°☾18'22	38.71000 AU
min. Earth dist.	796 Jul 17 j 00:04	0°☾38'51	36.67634 AU	opposition	804 Aug 01 j 03:53	12°☾14'19	-11°-4'-38
opposition	796 Jul 20 j 02:32	0°☾34'40	-8°-4'-29	direct	804 Oct 21 j 03:19	11°☾06'24	
	796 Aug 15 j 21:56	30°☾					
direct	796 Oct 08 j 22:14	29°☾24'32		conjunction	805 Jan 28 j 09:32	12°☾54'32	-10°-41'-30
	796 Nov 29 j 15:23	0°☾		minimum elong	805 Jan 28 j 09:19	12°☾54'31	10°41'31
				max. Earth dist.	805 Jan 31 j 12:28	12°☾59'53	40.79797 AU
conjunction	797 Jan 16 j 23:24	1°☾18'57	-7°-51'-17	retrograde	805 May 11 j 14:17	14°☾46'10	
minimum elong	797 Jan 16 j 23:12	1°☾18'56	7°51'19	min. Earth dist.	805 Jul 30 j 16:57	13°☾41'22	38.95809 AU
max. Earth dist.	797 Jan 20 j 01:05	1°☾24'29	38.78743 AU	opposition	805 Aug 02 j 20:06	13°☾37'17	-11°-24'-13
retrograde	797 Apr 30 j 06:22	3°☾16'25		direct	805 Oct 22 j 20:33	12°☾29'38	
min. Earth dist.	797 Jul 18 j 20:28	2°☾09'44	36.93656 AU				
opposition	797 Jul 21 j 22:19	2°☾05'36	-8°-29'-19	conjunction	806 Jan 30 j 00:04	14°☾17'03	-11°00'-2
direct	797 Oct 10 j 19:34	0°☾55'49		minimum elong	806 Jan 29 j 23:52	14°☾17'03	11°00'03
				max. Earth dist.	806 Feb 02 j 02:34	14°☾22'20	41.04362 AU
conjunction	798 Jan 18 j 16:56	2°☾49'25	-8°-14'-42		806 Feb 24 j 22:11	15°☾	
minimum elong	798 Jan 18 j 16:44	2°☾49'24	8°14'43	retrograde	806 May 13 j 07:24	16°☾08'03	
max. Earth dist.	798 Jan 21 j 18:34	2°☾54'54	39.04516 AU	min. Earth dist.	806 Aug 01 j 08:30	15°☾03'30	39.20561 AU
retrograde	798 May 01 j 22:58	4°☾46'07		opposition	806 Aug 04 j 12:05	14°☾59'25	-11°-43'-9
min. Earth dist.	798 Jul 20 j 14:47	3°☾39'46	37.19558 AU		806 Aug 04 j 01:20	15°☾	
opposition	798 Jul 23 j 17:30	3°☾35'36	-8°-53'-28	direct	806 Oct 24 j 10:21	13°☾52'02	
direct	798 Oct 12 j 15:56	2°☾26'08			807 Jan 08 j 03:38	15°☾	
conjunction	799 Jan 20 j 10:10	4°☾18'55	-8°-37'-30	conjunction	807 Jan 31 j 14:32	15°☾38'48	-11°-17'-58
minimum elong	799 Jan 20 j 09:57	4°☾18'54	8°37'32	minimum elong	807 Jan 31 j 14:19	15°☾38'47	11°18'00
max. Earth dist.	799 Jan 23 j 11:38	4°☾24'21	39.30122 AU	max. Earth dist.	807 Feb 03 j 18:14	15°☾44'08	41.28852 AU
retrograde	799 May 03 j 17:17	6°☾14'53		retrograde	807 May 14 j 22:27	17°☾29'11	
min. Earth dist.	799 Jul 22 j 09:52	5°☾08'46	37.45289 AU	min. Earth dist.	807 Aug 03 j 00:37	16°☾24'49	39.45205 AU
opposition	799 Jul 25 j 12:16	5°☾04'38	-9°-16'-58	opposition	807 Aug 06 j 03:32	16°☾20'48	-12°-1'-28
direct	799 Oct 14 j 09:42	3°☾55'28		direct	807 Oct 26 j 01:11	15°☾13'42	
conjunction	800 Jan 22 j 03:09	5°☾47'26	-8°-59'-41	conjunction	808 Feb 02 j 04:32	16°☾59'50	-11°-35'-20
minimum elong	800 Jan 22 j 02:57	5°☾47'25	8°59'41	minimum elong	808 Feb 02 j 04:20	16°☾59'49	11°35'20
max. Earth dist.	800 Jan 25 j 05:20	5°☾52'54	39.55532 AU	max. Earth dist.	808 Feb 05 j 07:22	17°☾05'04	41.53229 AU
retrograde	800 May 04 j 10:55	7°☾42'40		retrograde	808 May 15 j 13:47	18°☾49'36	
min. Earth dist.	800 Jul 23 j 04:32	6°☾36'46	37.70787 AU	min. Earth dist.	808 Aug 03 j 14:48	17°☾45'33	39.69717 AU
opposition	800 Jul 26 j 06:40	6°☾32'40	-9°-39'-48	opposition	808 Aug 06 j 18:47	17°☾41'30	-12°-19'-9
direct	800 Oct 15 j 03:39	5°☾23'46		direct	808 Oct 26 j 14:57	16°☾34'40	
conjunction	801 Jan 22 j 19:28	7°☾14'56	-9°-21'-16	conjunction	809 Feb 02 j 18:13	18°☾20'12	-11°-52'-6
minimum elong	801 Jan 22 j 19:16	7°☾14'56	9°21'17	minimum elong	809 Feb 02 j 18:00	18°☾20'11	11°52'07
max. Earth dist.	801 Jan 25 j 20:43	7°☾20'18	39.80707 AU	max. Earth dist.	809 Feb 05 j 21:49	18°☾25'28	41.77433 AU
retrograde	801 May 06 j 05:38	9°☾09'25		retrograde	809 May 17 j 01:37	20°☾09'24	
min. Earth dist.	801 Jul 24 j 21:48	8°☾03'46	37.96072 AU	min. Earth dist.	809 Aug 05 j 07:07	19°☾05'32	39.94030 AU
opposition	801 Jul 28 j 00:42	7°☾59'39	-10°-1'-59	opposition	809 Aug 08 j 09:51	19°☾01'33	-12°-36'-14
direct	801 Oct 16 j 19:42	6°☾51'00		direct	809 Oct 28 j 07:56	17°☾55'01	
conjunction	802 Jan 24 j 11:38	8°☾41'23	-9°-42'-14	conjunction	810 Feb 04 j 07:53	19°☾39'56	-12°-8'-20
minimum elong	802 Jan 24 j 11:25	8°☾41'22	9°42'14	minimum elong	810 Feb 04 j 07:42	19°☾39'55	12°08'20
max. Earth dist.	802 Jan 27 j 13:57	8°☾46'47	40.05672 AU	max. Earth dist.	810 Feb 07 j 11:01	19°☾45'09	42.01417 AU

retrograde	810 May 18 j 13:41	21° \approx 28'35		retrograde	818 May 28 j 18:21	1° \approx 37'37	
min. Earth dist.	810 Aug 06 j 21:18	20° \approx 24'59	40.18073 AU	min. Earth dist.	818 Aug 17 j 10:29	0° \approx 35'19	41.98420 AU
opposition	810 Aug 10 j 00:18	20° \approx 20'59	-12°-52'-45	opposition	818 Aug 20 j 10:14	0° \approx 31'36	-14°-45'-19
direct	810 Oct 30 j 00:07	19° \approx 14'44			818 Sep 15 j 23:12	30° \approx	
				direct	818 Nov 09 j 10:03	29° \approx 27'01	
conjunction	811 Feb 05 j 21:13	20° \approx 59'04	-12°-24'-1		818 Dec 31 j 21:51	0° \approx	
minimum elong	811 Feb 05 j 21:01	20° \approx 59'03	12°24'02				
max. Earth dist.	811 Feb 08 j 23:38	21° \approx 04'12	42.25089 AU	conjunction	819 Feb 15 j 22:31	1° \approx 06'51	-14°-11'-5
retrograde	811 May 20 j 04:31	22° \approx 47'10		minimum elong	819 Feb 15 j 22:22	1° \approx 06'51	14°11'06
min. Earth dist.	811 Aug 08 j 12:29	21° \approx 43'45	40.41788 AU	max. Earth dist.	819 Feb 18 j 23:05	1° \approx 11'39	44.02759 AU
opposition	811 Aug 11 j 14:43	21° \approx 39'49	-13°-8'-42	retrograde	819 May 30 j 06:11	2° \approx 50'39	
direct	811 Oct 31 j 13:35	20° \approx 33'49		min. Earth dist.	819 Aug 18 j 23:30	1° \approx 48'29	42.19849 AU
				opposition	819 Aug 21 j 22:09	1° \approx 44'50	-14°-57'00
conjunction	812 Feb 07 j 10:23	22° \approx 17'33	-12°-39'-10	direct	819 Nov 10 j 21:12	0° \approx 40'28	
minimum elong	812 Feb 07 j 10:12	22° \approx 17'33	12°39'12				
max. Earth dist.	812 Feb 10 j 13:05	22° \approx 22'41	42.48408 AU	conjunction	820 Feb 17 j 09:24	2° \approx 19'49	-14°-22'-13
retrograde	812 May 20 j 17:49	24° \approx 05'07		minimum elong	820 Feb 17 j 09:15	2° \approx 19'48	14°22'14
min. Earth dist.	812 Aug 09 j 03:21	23° \approx 01'51	40.65108 AU	max. Earth dist.	820 Feb 20 j 08:52	2° \approx 24'31	44.23915 AU
opposition	812 Aug 12 j 04:46	22° \approx 57'59	-13°-24'-6	retrograde	820 May 30 j 17:51	4° \approx 03'08	
direct	812 Nov 01 j 03:58	21° \approx 52'13		min. Earth dist.	820 Aug 19 j 10:32	3° \approx 01'10	42.41047 AU
				opposition	820 Aug 22 j 09:48	2° \approx 57'31	-15°-8'-11
conjunction	813 Feb 07 j 23:13	23° \approx 35'22	-12°-53'-49	direct	820 Nov 11 j 07:40	1° \approx 53'21	
minimum elong	813 Feb 07 j 23:02	23° \approx 35'22	12°53'50				
max. Earth dist.	813 Feb 11 j 00:15	23° \approx 40'21	42.71340 AU	conjunction	821 Feb 17 j 20:15	3° \approx 32'14	-14°-32'-51
retrograde	813 May 22 j 09:27	25° \approx 22'21		minimum elong	821 Feb 17 j 20:07	3° \approx 32'13	14°32'52
min. Earth dist.	813 Aug 10 j 16:57	24° \approx 19'18	40.88052 AU	max. Earth dist.	821 Feb 20 j 19:45	3° \approx 36'55	44.44814 AU
opposition	813 Aug 13 j 18:31	24° \approx 15'26	-13°-38'-58	retrograde	821 Jun 01 j 03:49	5° \approx 15'06	
direct	813 Nov 02 j 14:55	23° \approx 09'53		min. Earth dist.	821 Aug 20 j 23:31	4° \approx 13'16	42.61970 AU
				opposition	821 Aug 23 j 21:18	4° \approx 09'41	-15°-18'-52
conjunction	814 Feb 09 j 11:50	24° \approx 52'28	-13°-7'-58	direct	821 Nov 12 j 19:34	3° \approx 05'44	
minimum elong	814 Feb 09 j 11:39	24° \approx 52'27	13°08'00				
max. Earth dist.	814 Feb 12 j 13:26	24° \approx 57'27	42.93897 AU	conjunction	822 Feb 19 j 07:01	4° \approx 44'09	-14°-43'-3
retrograde	814 May 23 j 22:17	26° \approx 38'53		minimum elong	822 Feb 19 j 06:53	4° \approx 44'08	14°43'04
min. Earth dist.	814 Aug 12 j 08:00	25° \approx 35'54	41.10630 AU	max. Earth dist.	822 Feb 22 j 06:14	4° \approx 48'48	44.65419 AU
opposition	814 Aug 15 j 07:59	25° \approx 32'09	-13°-53'-19	retrograde	822 Jun 02 j 12:17	6° \approx 26'35	
direct	814 Nov 04 j 04:08	24° \approx 26'47		min. Earth dist.	822 Aug 22 j 10:53	5° \approx 24'55	42.82541 AU
				opposition	822 Aug 25 j 08:26	5° \approx 21'22	-15°-29'-5
conjunction	815 Feb 11 j 00:08	26° \approx 08'47	-13°-21'-37	direct	822 Nov 14 j 09:11	4° \approx 17'37	
minimum elong	815 Feb 10 j 23:57	26° \approx 08'46	13°21'37				
max. Earth dist.	815 Feb 14 j 00:45	26° \approx 13'41	43.16129 AU	conjunction	823 Feb 20 j 17:32	5° \approx 55'35	-14°-52'-47
retrograde	815 May 25 j 07:41	27° \approx 54'38		minimum elong	823 Feb 20 j 17:25	5° \approx 55'35	14°52'48
min. Earth dist.	815 Aug 13 j 20:14	26° \approx 51'52	41.32906 AU	max. Earth dist.	823 Feb 23 j 15:11	6° \approx 00'07	44.85638 AU
opposition	815 Aug 16 j 20:51	26° \approx 48'05	-14°-7'-7	retrograde	823 Jun 04 j 00:34	7° \approx 37'35	
direct	815 Nov 05 j 19:01	25° \approx 42'54		min. Earth dist.	823 Aug 23 j 22:39	6° \approx 36'04	43.02714 AU
				opposition	823 Aug 26 j 19:24	6° \approx 32'34	-15°-38'-50
conjunction	816 Feb 12 j 12:03	27° \approx 24'20	-13°-34'-45	direct	823 Nov 15 j 19:21	5° \approx 29'00	
minimum elong	816 Feb 12 j 11:53	27° \approx 24'20	13°34'46				
max. Earth dist.	816 Feb 15 j 12:29	27° \approx 29'12	43.38086 AU	conjunction	824 Feb 22 j 04:02	7° \approx 06'32	-15°-2'-7
retrograde	816 May 25 j 17:54	29° \approx 09'40		minimum elong	824 Feb 22 j 03:55	7° \approx 06'31	15°02'08
min. Earth dist.	816 Aug 14 j 10:03	28° \approx 07'00	41.54948 AU	max. Earth dist.	824 Feb 25 j 01:51	7° \approx 11'03	45.05436 AU
opposition	816 Aug 17 j 09:43	28° \approx 03'16	-14°-20'-23	retrograde	824 Jun 04 j 11:38	8° \approx 48'06	
direct	816 Nov 06 j 09:52	26° \approx 58'17		min. Earth dist.	824 Aug 24 j 11:03	7° \approx 46'40	43.22426 AU
				opposition	824 Aug 27 j 06:14	7° \approx 43'15	-15°-48'-10
conjunction	817 Feb 12 j 23:44	28° \approx 39'10	-13°-47'-22	direct	824 Nov 16 j 05:52	6° \approx 39'52	
minimum elong	817 Feb 12 j 23:35	28° \approx 39'10	13°47'22				
max. Earth dist.	817 Feb 16 j 00:34	28° \approx 44'03	43.59839 AU	conjunction	825 Feb 22 j 14:09	8° \approx 16'57	-15°-11'-1
	817 Apr 11 j 15:44	0° \approx		minimum elong	825 Feb 22 j 14:03	8° \approx 16'57	15°11'02
retrograde	817 May 27 j 04:49	0° \approx 23'58		max. Earth dist.	825 Feb 25 j 10:11	8° \approx 21'20	45.24779 AU
	817 Jul 13 j 02:21	30° \approx		retrograde	825 Jun 05 j 22:51	9° \approx 58'05	
min. Earth dist.	817 Aug 15 j 22:33	29° \approx 21'29	41.76775 AU	min. Earth dist.	825 Aug 25 j 21:33	8° \approx 56'48	43.41677 AU
opposition	817 Aug 18 j 22:09	29° \approx 17'46	-14°-33'-7	opposition	825 Aug 28 j 16:49	8° \approx 53'24	-15°-57'-5
direct	817 Nov 07 j 23:44	28° \approx 12'59		direct	825 Nov 17 j 14:56	7° \approx 50'10	
conjunction	818 Feb 14 j 11:11	29° \approx 53'19	-13°-59'-29	conjunction	826 Feb 24 j 00:11	9° \approx 26'49	-15°-19'-32
minimum elong	818 Feb 14 j 11:01	29° \approx 53'19	13°59'30	minimum elong	826 Feb 24 j 00:04	9° \approx 26'49	15°19'32
max. Earth dist.	818 Feb 17 j 10:58	29° \approx 58'06	43.81394 AU	max. Earth dist.	826 Feb 26 j 19:54	9° \approx 31'10	45.43664 AU
	818 Feb 18 j 15:33	0° \approx		retrograde	826 Jun 07 j 07:04	11° \approx 07'30	

min. Earth dist.	826 Aug 27 j 09:41	10° 10 06'16	43.60491 AU	conjunction	835 Mar 06 j 09:15	19° 19 33'38	-16°-17'-37
opposition	826 Aug 30 j 03:04	10° 10 02'58	-16°-5'-34	minimum elong	835 Mar 06 j 09:12	19° 19 33'38	16°17'39
direct	826 Nov 19 j 02:33	8° 8 59'53		max. Earth dist.	835 Mar 08 j 23:08	19° 19 37'28	47.00016 AU
				retrograde	835 Jun 17 j 15:54	21° 21 11'00	
conjunction	827 Feb 25 j 10:00	10° 10 36'06	-15°-27'-38	min. Earth dist.	835 Sep 07 j 01:31	20° 20 10'53	45.16415 AU
minimum elong	827 Feb 25 j 09:56	10° 10 36'06	15°27'39	opposition	835 Sep 09 j 13:46	20° 20 07'54	-17°-2'-47
max. Earth dist.	827 Feb 28 j 05:01	10° 10 40'23	45.62155 AU	direct	835 Nov 29 j 14:34	19° 19 06'18	
retrograde	827 Jun 08 j 14:02	12° 12 16'21					
min. Earth dist.	827 Aug 28 j 19:39	11° 11 15'15	43.78924 AU	conjunction	836 Mar 06 j 17:34	20° 20 39'15	-16°-22'-10
opposition	827 Aug 31 j 13:01	11° 11 11'57	-16°-13'-38	minimum elong	836 Mar 06 j 17:33	20° 20 39'15	16°22'10
direct	827 Nov 20 j 14:42	10° 10 09'02		max. Earth dist.	836 Mar 09 j 07:15	20° 20 43'03	47.15746 AU
				retrograde	836 Jun 18 j 00:58	22° 22 16'17	
conjunction	828 Feb 26 j 19:19	11° 11 44'49	-15°-35'-19	min. Earth dist.	836 Sep 07 j 11:58	21° 21 16'13	45.31981 AU
minimum elong	828 Feb 26 j 19:13	11° 11 44'49	15°35'20	opposition	836 Sep 09 j 22:15	21° 21 13'21	-17°-7'-11
max. Earth dist.	828 Feb 29 j 13:16	11° 11 49'01	45.80297 AU	direct	836 Nov 29 j 21:48	20° 20 11'53	
retrograde	828 Jun 09 j 00:05	13° 13 24'40					
min. Earth dist.	828 Aug 29 j 06:19	12° 12 23'39	43.97056 AU	conjunction	837 Mar 08 j 01:55	21° 21 44'31	-16°-26'-22
opposition	828 Aug 31 j 22:56	12° 12 20'24	-16°-21'-15	minimum elong	837 Mar 08 j 01:53	21° 21 44'30	16°26'23
direct	828 Nov 21 j 00:46	11° 11 17'38		max. Earth dist.	837 Mar 10 j 14:03	21° 21 48'12	47.30997 AU
				retrograde	837 Jun 19 j 08:22	23° 23 21'11	
conjunction	829 Feb 27 j 04:43	12° 12 53'00	-15°-42'-35	min. Earth dist.	837 Sep 08 j 20:18	22° 22 21'14	45.47046 AU
minimum elong	829 Feb 27 j 04:39	12° 12 53'00	15°42'36	opposition	837 Sep 11 j 06:20	22° 22 18'23	-17°-11'-15
max. Earth dist.	829 Mar 01 j 23:14	12° 12 57'13	45.98171 AU	direct	837 Dec 01 j 05:31	21° 21 17'01	
retrograde	829 Jun 10 j 09:34	14° 14 32'27					
min. Earth dist.	829 Aug 30 j 16:38	13° 13 31'33	44.14917 AU	conjunction	838 Mar 09 j 10:02	22° 22 49'20	-16°-30'-14
opposition	829 Sep 02 j 08:26	13° 13 28'20	-16°-28'-26	minimum elong	838 Mar 09 j 10:02	22° 22 49'20	16°30'15
direct	829 Nov 22 j 10:52	12° 12 25'43		max. Earth dist.	838 Mar 11 j 20:48	22° 22 52'56	47.45746 AU
				retrograde	838 Jun 20 j 15:07	24° 24 25'40	
conjunction	830 Feb 28 j 13:49	14° 14 00'42	-15°-49'-25	min. Earth dist.	838 Sep 10 j 06:12	23° 23 25'43	45.61630 AU
minimum elong	830 Feb 28 j 13:44	14° 14 00'42	15°49'26	opposition	838 Sep 12 j 14:27	23° 23 22'58	-17°-14'-59
max. Earth dist.	830 Mar 03 j 06:47	14° 14 04'48	46.15804 AU	direct	838 Dec 02 j 14:56	22° 22 21'43	
retrograde	830 Jun 11 j 21:39	15° 15 39'46					
min. Earth dist.	830 Sep 01 j 01:38	14° 14 39'01	44.32546 AU	conjunction	839 Mar 10 j 18:02	23° 23 53'41	-16°-33'-47
opposition	830 Sep 03 j 17:47	14° 14 35'49	-16°-35'-11	minimum elong	839 Mar 10 j 18:00	23° 23 53'40	16°33'48
direct	830 Nov 23 j 16:56	13° 13 33'22		max. Earth dist.	839 Mar 13 j 04:36	23° 23 57'15	47.60045 AU
				retrograde	839 Jun 21 j 20:04	25° 25 29'41	
conjunction	831 Mar 01 j 22:47	15° 15 07'59	-15°-55'-51	min. Earth dist.	839 Sep 11 j 14:40	24° 24 29'48	45.75774 AU
minimum elong	831 Mar 01 j 22:43	15° 15 07'59	15°55'53	opposition	839 Sep 13 j 22:08	24° 24 27'04	-17°-18'-22
max. Earth dist.	831 Mar 04 j 16:05	15° 15 12'05	46.33198 AU	direct	839 Dec 04 j 01:56	23° 23 25'55	
retrograde	831 Jun 13 j 07:02	16° 16 46'41					
min. Earth dist.	831 Sep 02 j 12:22	15° 15 46'01	44.49930 AU	conjunction	840 Mar 11 j 01:42	24° 24 57'33	-16°-37'00
opposition	831 Sep 05 j 02:56	15° 15 42'54	-16°-41'-31	minimum elong	840 Mar 11 j 01:43	24° 24 57'33	16°37'01
direct	831 Nov 25 j 00:51	14° 14 40'37		max. Earth dist.	840 Mar 13 j 10:25	25° 25 01'00	47.73951 AU
				retrograde	840 Jun 22 j 05:54	26° 26 33'13	
conjunction	832 Mar 02 j 07:36	16° 16 14'53	-16°-1'-52	min. Earth dist.	840 Sep 11 j 22:41	25° 25 33'25	45.89567 AU
minimum elong	832 Mar 02 j 07:33	16° 16 14'53	16°01'53	opposition	840 Sep 14 j 05:48	25° 25 30'43	-17°-21'-24
max. Earth dist.	832 Mar 05 j 00:15	16° 16 18'56	46.50366 AU	direct	840 Dec 04 j 08:25	24° 24 29'40	
retrograde	832 Jun 13 j 12:42	17° 17 53'13					
min. Earth dist.	832 Sep 02 j 20:53	16° 16 52'45	44.67058 AU	conjunction	841 Mar 12 j 09:18	26° 26 00'59	-16°-39'-52
opposition	832 Sep 05 j 11:53	16° 16 49'37	-16°-47'-25	minimum elong	841 Mar 12 j 09:17	26° 26 00'59	16°39'53
direct	832 Nov 25 j 11:58	15° 15 47'30		max. Earth dist.	841 Mar 14 j 18:15	26° 26 04'26	47.87523 AU
				retrograde	841 Jun 23 j 14:42	27° 27 36'20	
conjunction	833 Mar 03 j 16:07	17° 17 21'26	-16°-7'-30	min. Earth dist.	841 Sep 13 j 07:51	26° 26 36'32	46.03034 AU
minimum elong	833 Mar 03 j 16:03	17° 17 21'26	16°07'31	opposition	841 Sep 15 j 13:20	26° 26 33'56	-17°-24'-5
max. Earth dist.	833 Mar 06 j 07:47	17° 17 25'25	46.67256 AU	direct	841 Dec 05 j 15:12	25° 25 32'59	
retrograde	833 Jun 14 j 20:31	18° 18 59'27					
min. Earth dist.	833 Sep 04 j 07:03	17° 17 59'05	44.83894 AU	conjunction	842 Mar 13 j 16:50	27° 27 04'00	-16°-42'-23
opposition	833 Sep 06 j 20:49	17° 17 56'01	-16°-52'-55	minimum elong	842 Mar 13 j 16:51	27° 27 04'00	16°42'24
direct	833 Nov 26 j 22:18	16° 16 54'05		max. Earth dist.	842 Mar 16 j 00:41	27° 27 07'23	48.00807 AU
				retrograde	842 Jun 24 j 21:07	28° 28 39'02	
conjunction	834 Mar 05 j 00:49	18° 18 27'41	-16°-12'-44	min. Earth dist.	842 Sep 14 j 14:39	27° 27 39'23	46.16215 AU
minimum elong	834 Mar 05 j 00:47	18° 18 27'41	16°12'45	opposition	842 Sep 16 j 20:27	27° 27 36'45	-17°-26'-24
max. Earth dist.	834 Mar 07 j 16:38	18° 18 31'40	46.83831 AU	direct	842 Dec 06 j 21:47	26° 26 35'55	
retrograde	834 Jun 16 j 04:48	20° 20 05'23					
min. Earth dist.	834 Sep 05 j 16:35	19° 19 05'08	45.00361 AU	conjunction	843 Mar 15 j 00:08	28° 28 06'40	-16°-44'-34
opposition	834 Sep 08 j 05:16	19° 19 02'07	-16°-58'-2	minimum elong	843 Mar 15 j 00:09	28° 28 06'40	16°44'34
direct	834 Nov 28 j 08:08	18° 18 00'21		max. Earth dist.	843 Mar 17 j 07:03	28° 28 09'59	48.13806 AU

retrograde	843 Jun 26 j 02:58	29° ✕ 41'26		minimum elong	851 Mar 23 j 08:11	6° Υ 20'14	16°50'46
min. Earth dist.	843 Sep 15 j 23:21	28° ✕ 41'49	46.29121 AU	max. Earth dist.	851 Mar 25 j 07:09	6° Υ 23'00	49.04327 AU
opposition	843 Sep 18 j 03:44	28° ✕ 39'16	-17°-28'-22	retrograde	851 Jul 04 j 11:16	7° Υ 53'05	
direct	843 Dec 08 j 05:59	27° ✕ 38'34		min. Earth dist.	851 Sep 24 j 13:40	6° Υ 53'59	47.17961 AU
				opposition	851 Sep 26 j 08:56	6° Υ 51'54	-17°-32'-45
conjunction	844 Mar 15 j 07:18	29° ✕ 09'03	-16°-46'-24	direct	851 Dec 16 j 12:48	5° Υ 52'06	
minimum elong	844 Mar 15 j 07:20	29° ✕ 09'03	16°46'26				
max. Earth dist.	844 Mar 17 j 14:22	29° ✕ 12'22	48.26538 AU	conjunction	852 Mar 23 j 14:28	7° Υ 20'48	-16°-50'-15
	844 Apr 21 j 14:27	0° Υ		minimum elong	852 Mar 23 j 14:32	7° Υ 20'48	16°50'16
retrograde	844 Jun 26 j 08:09	0° Υ 43'33		max. Earth dist.	852 Mar 25 j 11:56	7° Υ 23'28	49.13525 AU
	844 Sep 02 j 08:27	30° R ✕		retrograde	852 Jul 04 j 18:32	8° Υ 53'25	
min. Earth dist.	844 Sep 16 j 06:52	29° ✕ 44'03	46.41726 AU	min. Earth dist.	852 Sep 24 j 19:42	7° Υ 54'22	47.26950 AU
opposition	844 Sep 18 j 10:47	29° ✕ 41'32	-17°-29'-59	opposition	852 Sep 26 j 14:59	7° Υ 52'18	-17°-32'00
direct	844 Dec 08 j 15:22	28° ✕ 40'58		direct	852 Dec 16 j 16:54	6° Υ 52'33	
	845 Mar 08 j 18:58	0° Υ					
conjunction	845 Mar 16 j 14:24	0° Υ 11'12	-16°-47'-54	conjunction	853 Mar 24 j 20:54	8° Υ 21'02	-16°-49'-29
minimum elong	845 Mar 16 j 14:26	0° Υ 11'12	16°47'55	minimum elong	853 Mar 24 j 20:59	8° Υ 21'02	16°49'30
max. Earth dist.	845 Mar 18 j 19:42	0° Υ 14'24	48.38967 AU	max. Earth dist.	853 Mar 26 j 17:23	8° Υ 23'39	49.22337 AU
retrograde	845 Jun 27 j 17:13	1° Υ 45'28		retrograde	853 Jul 05 j 23:25	9° Υ 53'25	
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opposition	845 Sep 19 j 17:41	0° Υ 43'35	-17°-31'-16	opposition	853 Sep 27 j 20:56	8° Υ 52'22	-17°-30'-58
	845 Oct 31 j 11:28	30° R ✕		direct	853 Dec 17 j 23:21	7° Υ 52'41	
direct	845 Dec 09 j 21:04	29° ✕ 43'10		conjunction	854 Mar 26 j 03:21	9° Υ 20'58	-16°-48'-24
	846 Jan 17 j 12:46	0° Υ		minimum elong	854 Mar 26 j 03:25	9° Υ 20'58	16°48'25
conjunction	846 Mar 17 j 21:35	1° Υ 13'11	-16°-49'-6	max. Earth dist.	854 Mar 27 j 23:36	9° Υ 23'34	49.30832 AU
minimum elong	846 Mar 17 j 21:36	1° Υ 13'11	16°49'08	retrograde	854 Jul 07 j 01:48	10° Υ 53'07	
max. Earth dist.	846 Mar 20 j 02:53	1° Υ 16'22	48.51046 AU	min. Earth dist.	854 Sep 27 j 09:32	9° Υ 54'06	47.43896 AU
retrograde	846 Jun 29 j 01:37	2° Υ 47'13		opposition	854 Sep 29 j 02:42	9° Υ 52'08	-17°-29'-37
min. Earth dist.	846 Sep 18 j 23:03	1° Υ 47'53	46.65912 AU	direct	854 Dec 19 j 07:58	8° Υ 52'31	
opposition	846 Sep 21 j 00:33	1° Υ 45'29	-17°-32'-14	conjunction	855 Mar 27 j 09:25	10° Υ 20'37	-16°-47'-2
direct	846 Dec 11 j 02:56	0° Υ 45'12		minimum elong	855 Mar 27 j 09:31	10° Υ 20'37	16°47'04
conjunction	847 Mar 19 j 04:35	2° Υ 15'01	-16°-49'-59	max. Earth dist.	855 Mar 29 j 03:55	10° Υ 23'06	49.39018 AU
minimum elong	847 Mar 19 j 04:38	2° Υ 15'01	16°49'59	retrograde	855 Jul 08 j 08:15	11° Υ 52'33	
max. Earth dist.	847 Mar 21 j 08:13	2° Υ 18'05	48.62716 AU	min. Earth dist.	855 Sep 28 j 16:03	10° Υ 53'36	47.51918 AU
retrograde	847 Jun 30 j 09:49	3° Υ 48'48		opposition	855 Sep 30 j 08:28	10° Υ 51'40	-17°-27'-58
min. Earth dist.	847 Sep 20 j 05:53	2° Υ 49'36	46.77360 AU	direct	855 Dec 20 j 14:05	9° Υ 52'07	
opposition	847 Sep 22 j 07:10	2° Υ 47'13	-17°-32'-53	conjunction	856 Mar 27 j 15:37	11° Υ 20'01	-16°-45'-22
direct	847 Dec 12 j 07:25	1° Υ 47'04		minimum elong	856 Mar 27 j 15:42	11° Υ 20'02	16°45'23
conjunction	848 Mar 19 j 11:34	3° Υ 16'40	-16°-50'-35	max. Earth dist.	856 Mar 29 j 10:15	11° Υ 22'30	49.46921 AU
minimum elong	848 Mar 19 j 11:36	3° Υ 16'40	16°50'36	retrograde	856 Jul 08 j 14:39	12° Υ 51'47	
max. Earth dist.	848 Mar 21 j 13:54	3° Υ 19'40	48.73899 AU	min. Earth dist.	856 Sep 28 j 23:02	11° Υ 52'50	47.59639 AU
retrograde	848 Jun 30 j 16:06	4° Υ 50'15		opposition	856 Sep 30 j 14:09	11° Υ 50'58	-17°-26'-1
min. Earth dist.	848 Sep 20 j 14:51	3° Υ 51'03	46.88303 AU	direct	856 Dec 20 j 20:45	10° Υ 51'30	
opposition	848 Sep 22 j 13:55	3° Υ 48'47	-17°-33'-16	conjunction	857 Mar 28 j 21:39	12° Υ 19'14	-16°-43'-25
direct	848 Dec 12 j 14:01	2° Υ 48'44		minimum elong	857 Mar 28 j 21:45	12° Υ 19'15	16°43'27
conjunction	849 Mar 20 j 18:33	4° Υ 18'08	-16°-50'-54	max. Earth dist.	857 Mar 30 j 14:50	12° Υ 21'38	49.54533 AU
minimum elong	849 Mar 20 j 18:37	4° Υ 18'08	16°50'55	retrograde	857 Jul 09 j 23:17	13° Υ 50'48	
max. Earth dist.	849 Mar 22 j 20:12	4° Υ 21'05	48.84570 AU	min. Earth dist.	857 Sep 30 j 04:38	12° Υ 51'58	47.67043 AU
retrograde	849 Jul 01 j 19:33	5° Υ 51'28		opposition	857 Oct 01 j 19:40	12° Υ 50'06	-17°-23'-46
min. Earth dist.	849 Sep 21 j 22:06	4° Υ 52'21	46.98695 AU	direct	857 Dec 21 j 23:31	11° Υ 50'43	
opposition	849 Sep 23 j 20:24	4° Υ 50'07	-17°-33'-22	conjunction	858 Mar 30 j 03:44	13° Υ 18'19	-16°-41'-11
direct	849 Dec 14 j 00:05	3° Υ 50'10		minimum elong	858 Mar 30 j 03:50	13° Υ 18'19	16°41'11
conjunction	850 Mar 22 j 01:22	5° Υ 19'20	-16°-50'-58	max. Earth dist.	858 Mar 31 j 19:55	13° Υ 20'38	49.61791 AU
minimum elong	850 Mar 22 j 01:24	5° Υ 19'20	16°50'59	retrograde	858 Jul 11 j 06:15	14° Υ 49'42	
max. Earth dist.	850 Mar 24 j 00:32	5° Υ 22'07	48.94698 AU	min. Earth dist.	858 Oct 01 j 12:10	13° Υ 50'51	47.74075 AU
retrograde	850 Jul 03 j 03:16	6° Υ 52'26		opposition	858 Oct 03 j 01:07	13° Υ 49'06	-17°-21'-14
min. Earth dist.	850 Sep 23 j 05:37	5° Υ 53'20	47.08570 AU	direct	858 Dec 23 j 03:06	12° Υ 49'48	
opposition	850 Sep 25 j 02:41	5° Υ 51'10	-17°-33'-12	conjunction	859 Mar 31 j 09:50	14° Υ 17'15	-16°-38'-41
direct	850 Dec 15 j 06:54	4° Υ 51'17		minimum elong	859 Mar 31 j 09:57	14° Υ 17'15	16°38'42
conjunction	851 Mar 23 j 08:06	6° Υ 20'14	-16°-50'-45	max. Earth dist.	859 Apr 02 j 01:28	14° Υ 19'32	49.68662 AU
				retrograde	859 Jul 12 j 08:58	15° Υ 48'28	















































































































min. Earth dist.	859 Oct 02 j 18:04	14°♈49'41	47.80668 AU	conjunction	868 Apr 08 j 13:17	22°♊59'52	-16°-5'-4
opposition	859 Oct 04 j 06:29	14°♈47'57	-17°-18'-26	minimum elong	868 Apr 08 j 13:26	22°♊59'52	16°05'05
direct	859 Dec 24 j 11:07	13°♈48'44		max. Earth dist.	868 Apr 09 j 18:06	23°♊01'30	50.09928 AU
				retrograde	868 Jul 20 j 12:57	24°♊29'47	
conjunction	860 Mar 31 j 15:40	15°♈16'03	-16°-35'-56	min. Earth dist.	868 Oct 11 j 01:44	23°♊31'01	48.19533 AU
minimum elong	860 Mar 31 j 15:48	15°♈16'03	16°35'56	opposition	868 Oct 12 j 03:46	23°♊29'48	-16°-41'-57
max. Earth dist.	860 Apr 02 j 05:01	15°♈18'12	49.75064 AU	direct	869 Jan 01 j 07:35	22°♊30'59	
retrograde	860 Jul 12 j 14:15	16°♈47'07					
min. Earth dist.	860 Oct 03 j 00:58	15°♈48'21	47.86774 AU	conjunction	869 Apr 09 j 18:50	23°♊57'15	-16°00'-2
opposition	860 Oct 04 j 11:58	15°♈46'41	-17°-15'-24	minimum elong	869 Apr 09 j 18:59	23°♊57'15	16°00'02
direct	860 Dec 24 j 17:44	14°♈47'32		max. Earth dist.	869 Apr 10 j 23:16	23°♊58'52	50.12782 AU
				retrograde	869 Jul 21 j 15:32	25°♊27'04	
conjunction	861 Apr 01 j 21:48	16°♈14'42	-16°-32'-56	min. Earth dist.	869 Oct 12 j 06:24	24°♊28'23	48.22132 AU
minimum elong	861 Apr 01 j 21:55	16°♈14'42	16°32'57	opposition	869 Oct 13 j 08:17	24°♊27'10	-16°-36'-34
max. Earth dist.	861 Apr 03 j 10:45	16°♈16'50	49.80952 AU	direct	870 Jan 02 j 14:01	23°♊28'24	
retrograde	861 Jul 13 j 20:22	17°♈45'37					
min. Earth dist.	861 Oct 04 j 08:09	16°♈46'49	47.92340 AU	conjunction	870 Apr 11 j 00:16	24°♊54'37	-15°-54'-45
opposition	861 Oct 05 j 17:14	16°♈45'15	-17°-12'-7	minimum elong	870 Apr 11 j 00:25	24°♊54'37	15°54'46
direct	861 Dec 25 j 23:59	15°♈46'09		max. Earth dist.	870 Apr 12 j 02:39	24°♊56'07	50.15300 AU
				retrograde	870 Jul 22 j 19:18	26°♊24'21	
conjunction	862 Apr 03 j 03:47	17°♈13'10	-16°-29'-42	opposition	870 Oct 14 j 13:00	25°♊24'32	-16°-30'-55
minimum elong	862 Apr 03 j 03:55	17°♈13'11	16°29'43	min. Earth dist.	870 Oct 13 j 12:34	25°♊25'41	48.24378 AU
max. Earth dist.	862 Apr 04 j 14:36	17°♈15'11	49.86321 AU	direct	871 Jan 03 j 20:26	24°♊25'50	
retrograde	862 Jul 15 j 03:58	18°♈43'55					
opposition	862 Oct 06 j 22:24	17°♈43'36	-17°-8'-35	conjunction	871 Apr 12 j 05:43	25°♊52'00	-15°-49'-13
min. Earth dist.	862 Oct 05 j 13:42	17°♈45'09	47.97389 AU	minimum elong	871 Apr 12 j 05:53	25°♊52'00	15°49'13
direct	862 Dec 27 j 03:21	16°♈44'33		max. Earth dist.	871 Apr 13 j 08:00	25°♊53'29	50.17426 AU
				retrograde	871 Jul 24 j 00:16	27°♊21'40	
conjunction	863 Apr 04 j 09:29	18°♈11'26	-16°-26'-15	opposition	871 Oct 15 j 17:39	26°♊21'55	-16°-25'-1
minimum elong	863 Apr 04 j 09:36	18°♈11'26	16°26'16	min. Earth dist.	871 Oct 14 j 18:46	26°♊22'59	48.26185 AU
max. Earth dist.	863 Apr 05 j 19:01	18°♈13'21	49.91178 AU	direct	872 Jan 05 j 02:59	25°♊23'16	
retrograde	863 Jul 16 j 09:06	19°♈42'00					
min. Earth dist.	863 Oct 06 j 21:02	18°♈43'11	48.01961 AU	conjunction	872 Apr 12 j 11:14	26°♊49'23	-15°-43'-27
opposition	863 Oct 08 j 03:36	18°♈41'44	-17°-4'-49	minimum elong	872 Apr 12 j 11:23	26°♊49'23	15°43'28
direct	863 Dec 28 j 08:17	17°♈42'43		max. Earth dist.	872 Apr 13 j 11:24	26°♊50'45	50.19100 AU
				retrograde	872 Jul 24 j 08:30	28°♊18'59	
conjunction	864 Apr 04 j 15:16	19°♈09'28	-16°-22'-32	opposition	872 Oct 15 j 22:12	27°♊19'17	-16°-18'-54
minimum elong	864 Apr 04 j 15:25	19°♈09'28	16°22'33	min. Earth dist.	872 Oct 14 j 23:54	27°♊20'20	48.27510 AU
max. Earth dist.	864 Apr 06 j 00:22	19°♈11'22	49.95608 AU	direct	873 Jan 05 j 05:29	26°♊20'41	
retrograde	864 Jul 16 j 11:23	20°♈39'52					
min. Earth dist.	864 Oct 07 j 02:17	19°♈41'05	48.06121 AU	conjunction	873 Apr 13 j 16:47	27°♊46'44	-15°-37'-28
opposition	864 Oct 08 j 08:29	19°♈39'39	-17°00'-47	minimum elong	873 Apr 13 j 16:57	27°♊46'45	15°37'28
direct	864 Dec 28 j 15:23	18°♈40'39		max. Earth dist.	873 Apr 14 j 15:26	27°♊48'01	50.20249 AU
				retrograde	873 Jul 25 j 14:42	29°♊16'15	
conjunction	865 Apr 05 j 20:49	20°♈07'17	-16°-18'-34	min. Earth dist.	873 Oct 16 j 07:01	28°♊17'32	48.28289 AU
minimum elong	865 Apr 05 j 20:56	20°♈07'17	16°18'34	opposition	873 Oct 17 j 02:55	28°♊16'36	-16°-12'-33
max. Earth dist.	865 Apr 07 j 03:52	20°♈09'04	49.99655 AU	direct	874 Jan 06 j 08:44	27°♊18'00	
retrograde	865 Jul 17 j 16:45	21°♈37'33					
min. Earth dist.	865 Oct 08 j 08:23	20°♈38'45	48.09933 AU	conjunction	874 Apr 14 j 22:25	28°♊44'00	-15°-31'-16
opposition	865 Oct 09 j 13:27	20°♈37'23	-16°-56'-29	minimum elong	874 Apr 14 j 22:34	28°♊44'01	15°31'17
direct	865 Dec 29 j 21:08	19°♈38'25		max. Earth dist.	874 Apr 15 j 20:07	28°♊45'14	50.20863 AU
					874 Jun 20 j 10:54	0°♈	
conjunction	866 Apr 07 j 02:29	21°♈04'55	-16°-14'-20	retrograde	874 Jul 26 j 17:45	0°♈13'25	
minimum elong	866 Apr 07 j 02:38	21°♈04'56	16°14'21		874 Sep 01 j 06:48	30°♈	
max. Earth dist.	866 Apr 08 j 09:35	21°♈06'42	50.03368 AU	opposition	874 Oct 18 j 07:19	29°♊13'47	-16°-6'00
retrograde	866 Jul 18 j 21:34	22°♈35'04		min. Earth dist.	874 Oct 17 j 12:05	29°♊14'41	48.28525 AU
opposition	866 Oct 10 j 18:10	21°♈34'57	-16°-51'-55	direct	875 Jan 07 j 14:22	28°♊15'11	
min. Earth dist.	866 Oct 09 j 14:20	21°♈36'16	48.13417 AU				
direct	866 Dec 31 j 03:36	20°♈36'02		conjunction	875 Apr 16 j 03:46	29°♊41'08	-15°-24'-51
				minimum elong	875 Apr 16 j 03:57	29°♊41'09	15°24'52
conjunction	867 Apr 08 j 07:57	22°♈02'26	-16°-9'-50	max. Earth dist.	875 Apr 16 j 23:02	29°♊42'14	50.20955 AU
minimum elong	867 Apr 08 j 08:05	22°♈02'27	16°09'50		875 Apr 30 j 02:48	0°♈	
max. Earth dist.	867 Apr 09 j 13:32	22°♈04'08	50.06793 AU	retrograde	875 Jul 27 j 21:45	1°♈10'27	
retrograde	867 Jul 20 j 05:34	23°♈32'27		opposition	875 Oct 19 j 11:52	0°♈10'49	-15°-59'-12
opposition	867 Oct 11 j 22:55	22°♈32'24	-16°-47'-4	min. Earth dist.	875 Oct 18 j 18:10	0°♈11'39	48.28276 AU
min. Earth dist.	867 Oct 10 j 19:03	22°♈33'43	48.16620 AU		875 Oct 29 j 03:18	30°♈	
direct	868 Jan 01 j 05:36	21°♈33'32		direct	876 Jan 08 j 20:07	29°♊12'13	

	876 Mar 18 j 09:20	0°♄		minimum elong	884 Apr 24 j 03:50	8°♄11'07	14°16'22
				max. Earth dist.	884 Apr 24 j 13:43	8°♄11'40	50.04889 AU
conjunction	876 Apr 16 j 09:07	0°♄38'05	-15°-18'-12	retrograde	884 Aug 04 j 19:59	9°♄40'06	
minimum elong	876 Apr 16 j 09:16	0°♄38'06	15°18'13	opposition	884 Oct 27 j 02:48	8°♄40'40	-14°-47'00
max. Earth dist.	876 Apr 17 j 04:07	0°♄39'10	50.20581 AU	min. Earth dist.	884 Oct 26 j 18:31	8°♄41'03	48.09421 AU
retrograde	876 Jul 28 j 00:45	2°♄07'19		direct	885 Jan 16 j 11:46	7°♄42'04	
opposition	876 Oct 19 j 16:20	1°♄07'41	-15°-52'-11				
min. Earth dist.	876 Oct 19 j 00:03	1°♄08'27	48.27574 AU	conjunction	885 Apr 25 j 09:09	9°♄08'00	-14°-7'-36
direct	877 Jan 09 j 03:14	0°♄09'04		minimum elong	885 Apr 25 j 09:20	9°♄08'00	14°07'37
				max. Earth dist.	885 Apr 25 j 16:29	9°♄08'25	50.01108 AU
conjunction	877 Apr 17 j 14:29	1°♄34'52	-15°-11'-20	retrograde	885 Aug 06 j 00:09	10°♄37'00	
minimum elong	877 Apr 17 j 14:40	1°♄34'53	15°11'21	opposition	885 Oct 28 j 07:07	9°♄37'35	-14°-37'-48
max. Earth dist.	877 Apr 18 j 07:46	1°♄35'51	50.19802 AU	min. Earth dist.	885 Oct 28 j 00:46	9°♄37'53	48.05240 AU
retrograde	877 Jul 29 j 07:31	3°♄04'02		direct	886 Jan 17 j 17:16	8°♄38'58	
opposition	877 Oct 20 j 20:33	2°♄04'24	-15°-44'-55				
min. Earth dist.	877 Oct 20 j 04:39	2°♄05'09	48.26496 AU	conjunction	886 Apr 26 j 14:48	10°♄04'56	-13°-58'-37
direct	878 Jan 10 j 06:45	1°♄05'45		minimum elong	886 Apr 26 j 15:01	10°♄04'57	13°58'37
				max. Earth dist.	886 Apr 26 j 21:32	10°♄05'19	49.96781 AU
conjunction	878 Apr 18 j 19:50	2°♄31'32	-15°-4'-13	retrograde	886 Aug 07 j 03:20	11°♄33'58	
minimum elong	878 Apr 18 j 19:59	2°♄31'32	15°04'14	opposition	886 Oct 29 j 11:30	10°♄34'32	-14°-28'-22
max. Earth dist.	878 Apr 19 j 11:59	2°♄32'26	50.18651 AU	min. Earth dist.	886 Oct 29 j 06:42	10°♄34'46	48.00504 AU
retrograde	878 Jul 30 j 14:53	4°♄00'36		direct	887 Jan 19 j 00:06	9°♄35'54	
min. Earth dist.	878 Oct 21 j 10:59	3°♄01'38	48.25072 AU				
opposition	878 Oct 22 j 01:00	3°♄00'59	-15°-37'-24	conjunction	887 Apr 27 j 20:08	11°♄01'53	-13°-49'-25
direct	879 Jan 11 j 08:59	2°♄02'20		minimum elong	887 Apr 27 j 20:19	11°♄01'54	13°49'26
				max. Earth dist.	887 Apr 28 j 00:49	11°♄02'09	49.91934 AU
conjunction	879 Apr 20 j 01:02	3°♄28'04	-14°-56'-51	retrograde	887 Aug 08 j 10:01	12°♄30'55	
minimum elong	879 Apr 20 j 01:13	3°♄28'05	14°56'53	opposition	887 Oct 30 j 15:49	11°♄31'28	-14°-18'-44
max. Earth dist.	879 Apr 20 j 16:52	3°♄28'58	50.17187 AU	min. Earth dist.	887 Oct 30 j 11:40	11°♄31'40	47.95273 AU
retrograde	879 Jul 31 j 18:19	4°♄57'05		direct	888 Jan 20 j 03:54	10°♄32'47	
opposition	879 Oct 23 j 05:17	3°♄57'29	-15°-29'-38				
min. Earth dist.	879 Oct 22 j 15:14	3°♄58'08	48.23332 AU	conjunction	888 Apr 28 j 01:36	11°♄58'49	-13°-40'00
direct	880 Jan 12 j 13:48	2°♄58'49		minimum elong	888 Apr 28 j 01:48	11°♄58'50	13°40'01
				max. Earth dist.	888 Apr 28 j 04:53	11°♄59'00	49.86603 AU
conjunction	880 Apr 20 j 06:14	4°♄24'34	-14°-49'-15	retrograde	888 Aug 08 j 17:54	13°♄27'51	
minimum elong	880 Apr 20 j 06:24	4°♄24'34	14°49'15	opposition	888 Oct 30 j 20:07	12°♄28'22	-14°-8'-51
max. Earth dist.	880 Apr 20 j 20:06	4°♄25'21	50.15420 AU	min. Earth dist.	888 Oct 30 j 18:06	12°♄28'28	47.89595 AU
retrograde	880 Jul 31 j 22:10	5°♄53'33		direct	889 Jan 20 j 05:52	11°♄29'38	
opposition	880 Oct 23 j 09:38	4°♄53'57	-15°-21'-36				
min. Earth dist.	880 Oct 22 j 20:55	4°♄54'33	48.21301 AU	conjunction	889 Apr 29 j 07:08	12°♄55'42	-13°-30'-21
direct	881 Jan 12 j 19:12	3°♄55'19		minimum elong	889 Apr 29 j 07:19	12°♄55'43	13°30'22
				max. Earth dist.	889 Apr 29 j 09:49	12°♄55'52	49.80870 AU
conjunction	881 Apr 21 j 11:35	5°♄21'03	-14°-41'-23	retrograde	889 Aug 09 j 22:50	14°♄24'44	
minimum elong	881 Apr 21 j 11:47	5°♄21'04	14°41'25	opposition	889 Nov 01 j 00:19	13°♄25'14	-13°-58'-44
max. Earth dist.	881 Apr 22 j 01:28	5°♄21'51	50.13349 AU	min. Earth dist.	889 Oct 31 j 22:28	13°♄25'19	47.83526 AU
retrograde	881 Aug 02 j 01:44	6°♄50'02		direct	890 Jan 21 j 09:26	12°♄26'25	
opposition	881 Oct 24 j 13:57	5°♄50'29	-15°-13'-18				
min. Earth dist.	881 Oct 24 j 02:27	5°♄51'01	48.18936 AU	conjunction	890 Apr 30 j 12:30	13°♄52'34	-13°-20'-28
direct	882 Jan 14 j 01:55	4°♄51'51		minimum elong	890 Apr 30 j 12:43	13°♄52'34	13°20'29
				max. Earth dist.	890 Apr 30 j 13:08	13°♄52'36	49.74765 AU
conjunction	882 Apr 22 j 16:53	6°♄17'37	-14°-33'-17		890 Jun 25 j 17:48	15°♄	
minimum elong	882 Apr 22 j 17:04	6°♄17'38	14°33'17	retrograde	890 Aug 11 j 02:27	15°♄21'36	
max. Earth dist.	882 Apr 23 j 04:57	6°♄18'18	50.10946 AU		890 Sep 26 j 19:10	15°♄	
retrograde	882 Aug 03 j 09:20	7°♄46'36		opposition	890 Nov 02 j 04:34	14°♄22'03	-13°-48'-22
opposition	882 Oct 25 j 18:07	6°♄47'06	-15°-4'-46	min. Earth dist.	890 Nov 02 j 04:13	14°♄22'04	47.77128 AU
min. Earth dist.	882 Oct 25 j 06:59	6°♄47'37	48.16216 AU	direct	891 Jan 22 j 15:03	13°♄23'12	
direct	883 Jan 15 j 04:16	5°♄48'29					
				conjunction	891 May 01 j 18:00	14°♄49'24	-13°-10'-21
conjunction	883 Apr 23 j 22:14	7°♄14'18	-14°-24'-56	minimum elong	891 May 01 j 18:12	14°♄49'25	13°10'21
minimum elong	883 Apr 23 j 22:25	7°♄14'19	14°24'58	max. Earth dist.	891 May 01 j 18:35	14°♄49'26	49.68352 AU
max. Earth dist.	883 Apr 24 j 09:04	7°♄14'55	50.08142 AU		891 May 09 j 13:43	15°♄	
retrograde	883 Aug 04 j 15:59	8°♄43'18		retrograde	891 Aug 12 j 03:49	16°♄18'29	
opposition	883 Oct 26 j 22:30	7°♄43'50	-14°-56'00	opposition	891 Nov 03 j 08:52	15°♄18'54	-13°-37'-45
min. Earth dist.	883 Oct 26 j 13:40	7°♄44'14	48.13067 AU	min. Earth dist.	891 Nov 03 j 09:25	15°♄18'52	47.70427 AU
direct	884 Jan 16 j 06:40	6°♄45'14			891 Nov 20 j 07:48	15°♄	
				direct	892 Jan 23 j 23:15	14°♄19'59	
conjunction	884 Apr 24 j 03:38	8°♄11'06	-14°-16'-22		892 Mar 27 j 01:34	15°♄	

conjunction	892 May 01 j 23:20	15° ♄ 46'16	-12°-59'-59	retrograde	900 Aug 20 j 09:03	24° ♄ 55'33	
minimum elong	892 May 01 j 23:32	15° ♄ 46'17	13°00'00	opposition	900 Nov 11 j 01:18	23° ♄ 55'40	-11°-51'-3
max. Earth dist.	892 May 01 j 22:22	15° ♄ 46'13	49.61666 AU	min. Earth dist.	900 Nov 11 j 12:41	23° ♄ 55'07	46.93436 AU
retrograde	892 Aug 12 j 10:31	17° ♄ 15'24		direct	901 Jan 31 j 13:25	22° ♄ 56'12	
opposition	892 Nov 03 j 13:10	16° ♄ 15'48	-13°-26'-52				
min. Earth dist.	892 Nov 03 j 13:56	16° ♄ 15'46	47.63457 AU	conjunction	901 May 11 j 03:52	24° ♄ 23'39	-11°-15'-59
direct	893 Jan 24 j 03:00	15° ♄ 16'50		minimum elong	901 May 11 j 04:05	24° ♄ 23'40	11°16'00
				max. Earth dist.	901 May 10 j 15:23	24° ♄ 22'56	48.84120 AU
conjunction	893 May 03 j 04:55	16° ♄ 43'12	-12°-49'-21	retrograde	901 Aug 21 j 11:02	25° ♄ 53'36	
minimum elong	893 May 03 j 05:07	16° ♄ 43'13	12°49'21	opposition	901 Nov 12 j 05:52	24° ♄ 53'39	-11°-38'-1
max. Earth dist.	893 May 03 j 02:55	16° ♄ 43'06	49.54691 AU	min. Earth dist.	901 Nov 12 j 18:18	24° ♄ 53'03	46.82646 AU
retrograde	893 Aug 13 j 17:52	18° ♄ 12'24		direct	902 Feb 01 j 21:42	23° ♄ 54'05	
opposition	893 Nov 04 j 17:31	17° ♄ 12'47	-13°-15'-44				
min. Earth dist.	893 Nov 04 j 20:12	17° ♄ 12'39	47.56193 AU	conjunction	902 May 12 j 09:57	25° ♄ 21'42	-11°-3'-17
direct	894 Jan 25 j 05:24	16° ♄ 13'47		minimum elong	902 May 12 j 10:08	25° ♄ 21'43	11°03'18
				max. Earth dist.	902 May 11 j 19:42	25° ♄ 20'53	48.73318 AU
conjunction	894 May 04 j 10:36	17° ♄ 40'16	-12°-38'-29	retrograde	902 Aug 22 j 17:27	26° ♄ 51'47	
minimum elong	894 May 04 j 10:47	17° ♄ 40'17	12°38'31	opposition	902 Nov 13 j 10:35	25° ♄ 51'46	-11°-24'-43
max. Earth dist.	894 May 04 j 08:10	17° ♄ 40'08	49.47426 AU	min. Earth dist.	902 Nov 13 j 23:27	25° ♄ 51'09	46.71534 AU
retrograde	894 Aug 14 j 23:15	19° ♄ 09'32		direct	903 Feb 03 j 02:19	24° ♄ 52'07	
opposition	894 Nov 05 j 21:51	18° ♄ 09'54	-13°-4'-20				
min. Earth dist.	894 Nov 06 j 00:44	18° ♄ 09'46	47.48604 AU	conjunction	903 May 13 j 15:58	26° ♄ 19'54	-10°-50'-20
direct	895 Jan 26 j 09:26	17° ♄ 10'52		minimum elong	903 May 13 j 16:10	26° ♄ 19'55	10°50'21
				max. Earth dist.	903 May 13 j 00:45	26° ♄ 19'02	48.62195 AU
conjunction	895 May 05 j 16:03	18° ♄ 37'29	-12°-27'-22	retrograde	903 Aug 24 j 01:19	27° ♄ 50'09	
minimum elong	895 May 05 j 16:15	18° ♄ 37'29	12°27'23	opposition	903 Nov 14 j 15:31	26° ♄ 50'04	-11°-11'-9
max. Earth dist.	895 May 05 j 11:24	18° ♄ 37'13	49.39802 AU	min. Earth dist.	903 Nov 15 j 06:10	26° ♄ 49'21	46.60124 AU
retrograde	895 Aug 16 j 04:25	20° ♄ 06'50		direct	904 Feb 04 j 05:10	25° ♄ 50'19	
opposition	895 Nov 07 j 02:22	19° ♄ 07'11	-12°-52'-42				
min. Earth dist.	895 Nov 07 j 06:55	19° ♄ 06'58	47.40636 AU	conjunction	904 May 13 j 22:15	27° ♄ 18'18	-10°-37'-8
direct	896 Jan 27 j 13:52	18° ♄ 08'07		minimum elong	904 May 13 j 22:26	27° ♄ 18'19	10°37'08
				max. Earth dist.	904 May 13 j 06:39	27° ♄ 17'25	48.50806 AU
conjunction	896 May 05 j 21:56	19° ♄ 34'52	-12°-16'-2	retrograde	904 Aug 24 j 07:34	28° ♄ 48'42	
minimum elong	896 May 05 j 22:08	19° ♄ 34'53	12°16'03	opposition	904 Nov 14 j 20:16	27° ♄ 48'34	-10°-57'-20
max. Earth dist.	896 May 05 j 16:54	19° ♄ 34'35	49.31756 AU	min. Earth dist.	904 Nov 15 j 10:51	27° ♄ 47'52	46.48447 AU
retrograde	896 Aug 16 j 07:40	21° ♄ 04'19		direct	905 Feb 04 j 09:31	26° ♄ 48'44	
opposition	896 Nov 07 j 06:49	20° ♄ 04'39	-12°-40'-50	max. Earth dist.	905 May 14 j 10:51	28° ♄ 15'56	48.39145 AU
min. Earth dist.	896 Nov 07 j 12:51	20° ♄ 04'22	47.32201 AU				
direct	897 Jan 27 j 20:48	19° ♄ 05'32		conjunction	905 May 15 j 04:33	28° ♄ 16'57	-10°-23'-40
				minimum elong	905 May 15 j 04:45	28° ♄ 16'58	10°23'42
conjunction	897 May 07 j 03:50	20° ♄ 32'24	-12°-4'-28	retrograde	905 Aug 25 j 14:08	29° ♄ 47'31	
minimum elong	897 May 07 j 04:03	20° ♄ 32'25	12°04'28	opposition	905 Nov 16 j 01:19	28° ♄ 47'20	-10°-43'-14
max. Earth dist.	897 May 06 j 20:37	20° ♄ 32'00	49.23228 AU	min. Earth dist.	905 Nov 16 j 17:27	28° ♄ 46'34	46.36499 AU
retrograde	897 Aug 17 j 13:41	22° ♄ 01'58		direct	906 Feb 05 j 14:07	27° ♄ 47'26	
opposition	897 Nov 08 j 11:24	21° ♄ 02'15	-12°-28'-44				
min. Earth dist.	897 Nov 08 j 18:15	21° ♄ 01'56	47.23261 AU	conjunction	906 May 16 j 11:03	29° ♄ 15'54	-10°-9'-57
direct	898 Jan 29 j 01:30	20° ♄ 03'04		minimum elong	906 May 16 j 11:14	29° ♄ 15'55	10°09'57
				max. Earth dist.	906 May 15 j 17:20	29° ♄ 14'53	48.27192 AU
conjunction	898 May 08 j 09:47	21° ♄ 30'05	-11°-52'-41		906 Jun 18 j 16:36	0° ♂	
minimum elong	898 May 08 j 09:58	21° ♄ 30'05	11°52'42	retrograde	906 Aug 26 j 17:45	0° ♂ 46'40	
max. Earth dist.	898 May 08 j 00:49	21° ♄ 29'34	49.14163 AU		906 Nov 05 j 09:56	30° ♂	
retrograde	898 Aug 18 j 21:02	22° ♄ 59'44		opposition	906 Nov 17 j 06:21	29° ♄ 46'26	-10°-28'-52
opposition	898 Nov 09 j 16:02	21° ♄ 59'59	-12°-16'-24	min. Earth dist.	906 Nov 17 j 23:25	29° ♄ 45'37	46.24231 AU
min. Earth dist.	898 Nov 10 j 01:11	21° ♄ 59'33	47.13789 AU	direct	907 Feb 06 j 21:51	28° ♄ 46'27	
direct	899 Jan 30 j 04:54	21° ♄ 00'42			907 May 06 j 17:29	0° ♂	
				conjunction	907 May 17 j 17:33	0° ♂ 15'11	-9°-55'-58
conjunction	899 May 09 j 15:48	22° ♄ 27'51	-11°-40'-41	minimum elong	907 May 17 j 17:44	0° ♂ 15'11	9°56'00
minimum elong	899 May 09 j 16:00	22° ♄ 27'52	11°40'42	max. Earth dist.	907 May 16 j 21:58	0° ♂ 14'03	48.14912 AU
max. Earth dist.	899 May 09 j 06:01	22° ♄ 27'18	49.04602 AU	retrograde	907 Aug 28 j 00:02	1° ♂ 46'10	
retrograde	899 Aug 20 j 03:27	23° ♄ 57'35		opposition	907 Nov 18 j 11:26	0° ♂ 45'53	-10°-14'-15
opposition	899 Nov 10 j 20:35	22° ♄ 57'47	-12°-3'-51	min. Earth dist.	907 Nov 19 j 05:18	0° ♂ 45'02	46.11608 AU
min. Earth dist.	899 Nov 11 j 06:06	22° ♄ 57'20	47.03830 AU		908 Jan 02 j 14:17	30° ♂	
direct	900 Jan 31 j 08:29	21° ♄ 58'25		direct	908 Feb 08 j 03:03	29° ♄ 45'50	
					908 Mar 15 j 05:57	0° ♂	
conjunction	900 May 09 j 21:40	23° ♄ 25'43	-11°-28'-27	max. Earth dist.	908 May 17 j 03:14	1° ♂ 13'35	48.02214 AU
minimum elong	900 May 09 j 21:52	23° ♄ 25'43	11°28'28				
max. Earth dist.	900 May 09 j 09:31	23° ♄ 25'01	48.94569 AU				

conjunction	908 May 18 j 00:16	1°II14'48	-9°-41'-46	opposition	916 Nov 26 j 14:40	9°II52'38	-7°-51'-16
minimum elong	908 May 18 j 00:28	1°II14'49	9°41'46	min. Earth dist.	916 Nov 27 j 19:41	9°II51'12	44.77515 AU
retrograde	908 Aug 28 j 07:59	2°II46'01		direct	917 Feb 16 j 06:58	8°II51'14	
opposition	908 Nov 18 j 16:49	1°II45'41	-9°-59'-22	max. Earth dist.	917 May 26 j 09:01	10°II20'48	46.67615 AU
min. Earth dist.	908 Nov 19 j 12:53	1°II44'43	45.98530 AU				
direct	909 Feb 08 j 07:25	0°II45'32		conjunction	917 May 27 j 18:13	10°II22'46	-7°-22'-57
max. Earth dist.	909 May 18 j 09:16	2°II13'30	47.89041 AU	minimum elong	917 May 27 j 18:22	10°II22'47	7°22'58
				retrograde	917 Sep 06 j 22:40	11°II56'05	
conjunction	909 May 19 j 07:18	2°II14'46	-9°-27'-19	opposition	917 Nov 27 j 20:49	10°II54'41	-7°-34'-1
minimum elong	909 May 19 j 07:29	2°II14'47	9°27'19	min. Earth dist.	917 Nov 29 j 02:30	10°II53'13	44.60930 AU
retrograde	909 Aug 29 j 17:20	3°II46'12		direct	918 Feb 17 j 13:17	9°II53'08	
opposition	909 Nov 19 j 22:06	2°II45'47	-9°-44'-15	max. Earth dist.	918 May 27 j 16:08	11°II23'01	46.51020 AU
min. Earth dist.	909 Nov 20 j 18:43	2°II44'48	45.84946 AU				
direct	910 Feb 09 j 10:22	1°II45'31		conjunction	918 May 29 j 02:14	11°II25'02	-7°-6'-14
				minimum elong	918 May 29 j 02:24	11°II25'03	7°06'16
conjunction	910 May 20 j 14:20	3°II15'02	-9°-12'-38	retrograde	918 Sep 08 j 05:38	12°II58'41	
minimum elong	910 May 20 j 14:31	3°II15'02	9°12'38	opposition	918 Nov 29 j 03:21	11°II57'11	-7°-16'-30
max. Earth dist.	910 May 19 j 13:37	3°II13'36	47.75342 AU	min. Earth dist.	918 Nov 30 j 10:40	11°II55'38	44.44067 AU
retrograde	910 Aug 31 j 01:22	4°II46'39		direct	919 Feb 18 j 20:04	10°II55'30	
opposition	910 Nov 21 j 03:43	3°II46'09	-9°-28'-54	max. Earth dist.	919 May 28 j 23:35	12°II25'43	46.34141 AU
min. Earth dist.	910 Nov 22 j 02:28	3°II45'03	45.70845 AU				
direct	911 Feb 10 j 14:43	2°II45'45		conjunction	919 May 30 j 10:16	12°II27'47	-6°-49'-15
				minimum elong	919 May 30 j 10:25	12°II27'48	6°49'16
conjunction	911 May 21 j 21:24	4°II15'31	-8°-57'-43	retrograde	919 Sep 09 j 15:38	14°II01'47	
minimum elong	911 May 21 j 21:34	4°II15'31	8°57'44	opposition	919 Nov 30 j 09:52	13°II00'11	-6°-58'-41
max. Earth dist.	911 May 20 j 20:06	4°II14'02	47.61129 AU	min. Earth dist.	919 Dec 01 j 17:25	12°II58'37	44.26884 AU
retrograde	911 Sep 01 j 04:32	5°II47'21		direct	920 Feb 20 j 00:37	11°II58'21	
opposition	911 Nov 22 j 09:22	4°II46'43	-9°-13'-17	max. Earth dist.	920 May 29 j 05:38	13°II28'51	46.16888 AU
min. Earth dist.	911 Nov 23 j 09:12	4°II45'34	45.56236 AU				
direct	912 Feb 11 j 23:56	3°II46'10		conjunction	920 May 30 j 18:40	13°II31'04	-6°-32'-1
max. Earth dist.	912 May 21 j 01:11	5°II14'35	47.46443 AU	minimum elong	920 May 30 j 18:48	13°II31'04	6°32'02
				retrograde	920 Sep 10 j 02:29	15°II05'26	
conjunction	912 May 22 j 04:35	5°II16'11	-8°-42'-33	opposition	920 Nov 30 j 16:36	14°II03'42	-6°-40'-36
minimum elong	912 May 22 j 04:46	5°II16'12	8°42'35	min. Earth dist.	920 Dec 02 j 02:25	14°II02'01	44.09308 AU
retrograde	912 Sep 01 j 09:52	6°II48'14		direct	921 Feb 20 j 04:39	13°II01'43	
opposition	912 Nov 22 j 14:55	5°II47'29	-8°-57'-25	max. Earth dist.	921 May 30 j 13:52	14°II32'36	45.99205 AU
min. Earth dist.	912 Nov 23 j 15:41	5°II46'16	45.41186 AU				
direct	913 Feb 12 j 07:20	4°II46'45		conjunction	921 Jun 01 j 03:28	14°II34'52	-6°-14'-31
max. Earth dist.	913 May 22 j 07:16	6°II15'22	47.31319 AU	minimum elong	921 Jun 01 j 03:36	14°II34'52	6°14'31
				retrograde	921 Sep 11 j 09:20	16°II09'36	
conjunction	913 May 23 j 11:59	6°II17'03	-8°-27'-9	opposition	921 Dec 01 j 23:35	15°II07'44	-6°-22'-15
minimum elong	913 May 23 j 12:08	6°II17'03	8°27'10	min. Earth dist.	921 Dec 03 j 10:14	15°II06'01	43.91269 AU
retrograde	913 Sep 02 j 16:57	7°II49'19		direct	922 Feb 21 j 13:50	14°II05'35	
opposition	913 Nov 23 j 20:45	6°II48'26	-8°-41'-17	max. Earth dist.	922 May 31 j 20:10	15°II36'45	45.81053 AU
min. Earth dist.	913 Nov 24 j 23:32	6°II47'07	45.25731 AU				
direct	914 Feb 13 j 13:04	5°II47'32		conjunction	922 Jun 02 j 12:09	15°II39'10	-5°-56'-45
				minimum elong	922 Jun 02 j 12:17	15°II39'10	5°56'46
conjunction	914 May 24 j 19:20	7°II18'06	-8°-11'-30	retrograde	922 Sep 12 j 16:37	17°II14'15	
minimum elong	914 May 24 j 19:31	7°II18'06	8°11'31	opposition	922 Dec 03 j 06:41	16°II12'16	-6°-3'-38
max. Earth dist.	914 May 23 j 13:59	7°II16'22	47.15830 AU	min. Earth dist.	922 Dec 04 j 18:36	16°II10'28	43.72766 AU
retrograde	914 Sep 04 j 00:40	8°II50'36		direct	923 Feb 22 j 22:34	15°II09'54	
opposition	914 Nov 25 j 02:31	7°II49'34	-8°-24'-54	max. Earth dist.	923 Jun 02 j 03:59	16°II41'26	45.62424 AU
min. Earth dist.	914 Nov 26 j 05:18	7°II48'16	45.09936 AU				
direct	915 Feb 14 j 18:08	6°II48'30		conjunction	923 Jun 03 j 21:12	16°II43'56	-5°-38'-44
max. Earth dist.	915 May 24 j 19:19	8°II17'31	47.00021 AU	minimum elong	923 Jun 03 j 21:20	16°II43'56	5°38'45
				retrograde	923 Sep 13 j 23:54	18°II19'24	
conjunction	915 May 26 j 02:45	8°II19'22	-7°-55'-35	opposition	923 Dec 04 j 14:01	17°II17'14	-5°-44'-44
minimum elong	915 May 26 j 02:55	8°II19'22	7°55'36	min. Earth dist.	923 Dec 06 j 03:52	17°II15'20	43.53804 AU
retrograde	915 Sep 05 j 09:49	9°II52'07		direct	924 Feb 24 j 06:42	16°II14'41	
opposition	915 Nov 26 j 08:32	8°II50'57	-8°-8'-13	max. Earth dist.	924 Jun 02 j 11:59	17°II46'33	45.43373 AU
min. Earth dist.	915 Nov 27 j 12:58	8°II49'33	44.93860 AU				
direct	916 Feb 15 j 22:36	7°II49'43		conjunction	924 Jun 04 j 06:21	17°II49'08	-5°-20'-28
max. Earth dist.	916 May 25 j 03:05	9°II19'03	46.83943 AU	minimum elong	924 Jun 04 j 06:28	17°II49'08	5°20'29
				retrograde	924 Sep 14 j 09:29	19°II24'59	
conjunction	916 May 26 j 10:25	9°II20'54	-7°-39'-24	opposition	924 Dec 04 j 21:23	18°II22'39	-5°-25'-33
minimum elong	916 May 26 j 10:35	9°II20'55	7°39'25	min. Earth dist.	924 Dec 06 j 11:31	18°II20'43	43.34438 AU
retrograde	916 Sep 05 j 15:23	10°II53'55		direct	925 Feb 24 j 13:07	17°II19'51	

max. Earth dist.	925 Jun 03 j 19:08	18°II52'02	45.23920 AU	minimum elong	933 Jun 15 j 02:15	27°II58'28	2°23'51
				retrograde	933 Sep 25 j 06:18	29°II38'32	
conjunction	925 Jun 05 j 15:41	18°II54'45	-5°-1'-56	opposition	933 Dec 15 j 01:40	28°II34'28	-2°-19'-48
minimum elong	925 Jun 05 j 15:48	18°II54'46	5°01'57	min. Earth dist.	933 Dec 17 j 01:26	28°II31'59	41.48389 AU
retrograde	925 Sep 15 j 21:01	20°II31'00		direct	934 Mar 06 j 16:38	27°II29'34	
opposition	925 Dec 06 j 04:58	19°II28'28	-5°-6'-5	max. Earth dist.	934 Jun 14 j 07:44	29°II05'58	43.37350 AU
min. Earth dist.	925 Dec 07 j 21:08	19°II26'26	43.14719 AU				
direct	926 Feb 25 j 18:34	18°II25'27		conjunction	934 Jun 16 j 13:49	29°II09'25	-2°-2'-51
max. Earth dist.	926 Jun 05 j 04:42	19°II58'05	45.04145 AU	minimum elong	934 Jun 16 j 13:53	29°II09'26	2°02'51
					934 Jul 21 j 02:03	0°☾	
conjunction	926 Jun 07 j 01:16	20°II00'48	-4°-43'-8	retrograde	934 Sep 26 j 17:03	0°☾50'02	
minimum elong	926 Jun 07 j 01:22	20°II00'49	4°43'08		934 Dec 05 j 01:27	30°RII	
retrograde	926 Sep 17 j 06:39	21°II37'27		opposition	934 Dec 16 j 11:28	29°II45'46	-1°-57'-42
opposition	926 Dec 07 j 12:46	20°II34'43	-4°-46'-20	min. Earth dist.	934 Dec 18 j 11:44	29°II43'14	41.26247 AU
min. Earth dist.	926 Dec 09 j 05:16	20°II32'40	42.94704 AU	direct	935 Mar 08 j 02:38	28°II40'35	
direct	927 Feb 27 j 03:14	19°II31'27			935 Jun 04 j 06:41	0°☾	
max. Earth dist.	927 Jun 06 j 12:12	21°II04'27	44.84105 AU	max. Earth dist.	935 Jun 15 j 17:36	0°☾17'29	43.15046 AU
conjunction	927 Jun 08 j 10:41	21°II07'18	-4°-24'-3	conjunction	935 Jun 18 j 01:39	0°☾21'05	-1°-41'-36
minimum elong	927 Jun 08 j 10:48	21°II07'19	4°24'04	minimum elong	935 Jun 18 j 01:42	0°☾21'05	1°41'37
retrograde	927 Sep 18 j 16:46	22°II44'22		retrograde	935 Sep 28 j 04:43	2°☾02'16	
opposition	927 Dec 08 j 20:46	21°II41'26	-4°-26'-18	opposition	935 Dec 17 j 21:40	0°☾57'45	-1°-35'-19
min. Earth dist.	927 Dec 10 j 14:12	21°II39'20	42.74462 AU	min. Earth dist.	935 Dec 20 j 00:05	0°☾55'06	41.03708 AU
direct	928 Feb 28 j 11:09	20°II37'56			936 Feb 11 j 22:23	30°RII	
max. Earth dist.	928 Jun 06 j 21:39	22°II11'22	44.63835 AU	direct	936 Mar 08 j 11:23	29°II52'17	
					936 Apr 02 j 21:20	0°☾	
conjunction	928 Jun 08 j 20:40	22°II14'17	-4°-4'-42	max. Earth dist.	936 Jun 16 j 05:33	1°☾29'47	42.92367 AU
minimum elong	928 Jun 08 j 20:46	22°II14'17	4°04'43				
retrograde	928 Sep 18 j 22:38	23°II51'47		conjunction	936 Jun 18 j 13:59	1°☾33'25	-1°-20'-5
opposition	928 Dec 09 j 04:57	22°II48'40	-4°-5'-57	minimum elong	936 Jun 18 j 14:02	1°☾33'26	1°20'06
min. Earth dist.	928 Dec 10 j 23:35	22°II46'29	42.54012 AU	retrograde	936 Sep 28 j 17:58	3°☾15'12	
direct	929 Feb 28 j 21:58	21°II44'56		opposition	936 Dec 18 j 07:53	2°☾10'26	-1°-12'-39
max. Earth dist.	929 Jun 08 j 07:04	23°II18'50	44.43388 AU	min. Earth dist.	936 Dec 20 j 10:38	2°☾07'45	40.80815 AU
				direct	937 Mar 09 j 20:46	1°☾04'39	
conjunction	929 Jun 10 j 06:49	23°II21'48	-3°-45'-5	max. Earth dist.	937 Jun 17 j 15:39	2°☾42'39	42.69346 AU
minimum elong	929 Jun 10 j 06:55	23°II21'48	3°45'06				
retrograde	929 Sep 20 j 08:21	24°II59'46		conjunction	937 Jun 20 j 02:30	2°☾46'28	0°-58'-19
opposition	929 Dec 10 j 13:22	23°II56'28	-3°-45'-19	minimum elong	937 Jun 20 j 02:32	2°☾46'28	0°58'20
min. Earth dist.	929 Dec 12 j 07:57	23°II54'16	42.33390 AU	retrograde	937 Sep 30 j 08:14	4°☾28'50	
direct	930 Mar 02 j 05:58	22°II52'30		opposition	937 Dec 19 j 18:32	3°☾23'48	0°-49'-41
max. Earth dist.	930 Jun 09 j 15:40	24°II26'50	44.22741 AU	min. Earth dist.	937 Dec 21 j 22:58	3°☾21'01	40.57629 AU
				direct	938 Mar 11 j 05:49	2°☾17'42	
conjunction	930 Jun 11 j 17:05	24°II29'55	-3°-25'-10	max. Earth dist.	938 Jun 19 j 04:12	3°☾56'22	42.46041 AU
minimum elong	930 Jun 11 j 17:10	24°II29'55	3°25'11				
retrograde	930 Sep 21 j 20:46	26°II08'24		conjunction	938 Jun 21 j 15:16	4°☾00'14	0°-36'-17
opposition	930 Dec 11 j 22:06	25°II04'54	-3°-24'-22	minimum elong	938 Jun 21 j 15:17	4°☾00'14	0°36'17
min. Earth dist.	930 Dec 13 j 18:32	25°II02'37	42.12571 AU	retrograde	938 Oct 01 j 19:17	5°☾43'12	
direct	931 Mar 03 j 10:54	24°II00'43		opposition	938 Dec 21 j 05:30	4°☾37'55	0°-26'-26
max. Earth dist.	931 Jun 11 j 02:21	25°II35'37	44.01884 AU	min. Earth dist.	938 Dec 23 j 10:41	4°☾35'04	40.34192 AU
				direct	939 Mar 12 j 19:00	3°☾31'30	
conjunction	931 Jun 13 j 03:47	25°II38'43	-3°-5'00	max. Earth dist.	939 Jun 20 j 15:53	5°☾10'46	42.22528 AU
minimum elong	931 Jun 13 j 03:52	25°II38'43	3°05'02				
retrograde	931 Sep 23 j 07:41	27°II17'42		conjunction	939 Jun 23 j 04:17	5°☾14'44	0°-14'00
opposition	931 Dec 13 j 06:55	26°II14'02	-3°-3'-9	minimum elong	939 Jun 23 j 04:17	5°☾14'45	0°14'01
min. Earth dist.	931 Dec 15 j 03:35	26°II11'43	41.91511 AU	behind sun begin	939 Jun 23 j 01:13	5°☾14'33	
direct	932 Mar 03 j 20:13	25°II09'37		behind sun end	939 Jun 23 j 07:21	5°☾14'56	
max. Earth dist.	932 Jun 11 j 11:01	26°II44'58	43.80746 AU	retrograde	939 Oct 03 j 07:32	6°☾58'22	
				opposition	939 Dec 22 j 16:37	5°☾52'48	0°-2'-54
conjunction	932 Jun 13 j 14:43	26°II48'13	-2°-44'-33	min. Earth dist.	939 Dec 24 j 22:10	5°☾49'56	40.10590 AU
minimum elong	932 Jun 13 j 14:47	26°II48'14	2°44'33	asc. node	940 Feb 05 j 21:45	5°☾01'42	
retrograde	932 Sep 23 j 20:29	28°II27'44		direct	940 Mar 13 j 07:11	4°☾46'04	
opposition	932 Dec 13 j 16:09	27°II23'53	-2°-41'-37	max. Earth dist.	940 Jun 21 j 04:16	6°☾26'00	41.98841 AU
min. Earth dist.	932 Dec 15 j 14:20	27°II21'29	41.70144 AU				
direct	933 Mar 05 j 05:09	26°II19'14		conjunction	940 Jun 23 j 17:45	6°☾30'04	0°08'37
max. Earth dist.	933 Jun 12 j 21:45	27°II55'09	43.59241 AU	minimum elong	940 Jun 23 j 17:45	6°☾30'04	0°08'38
				behind sun begin	940 Jun 23 j 12:06	6°☾29'43	
conjunction	933 Jun 15 j 02:11	27°II58'28	-2°-23'-50	behind sun end	940 Jun 23 j 23:24	6°☾30'25	

retrograde	940 Oct 03 j 19:54	8°  14'22		direct	949 Mar 24 j 23:16	16°  42'16	
opposition	940 Dec 23 j 04:19	7°  08'33	0°20'53	max. Earth dist.	949 Jul 03 j 13:49	18°  29'12	39.77610 AU
min. Earth dist.	940 Dec 25 j 11:27	7°  05'34	39.86843 AU				
direct	941 Mar 14 j 17:41	6°  01'30		conjunction	949 Jul 06 j 13:18	18°  34'14	3°42'18
max. Earth dist.	941 Jun 22 j 17:56	7°  42'10	41.75036 AU	minimum elong	949 Jul 06 j 13:11	18°  34'14	3°42'18
				retrograde	949 Oct 16 j 21:48	20°  25'45	
conjunction	941 Jun 25 j 07:34	7°  46'16	0°31'24	opposition	950 Jan 04 j 06:42	19°  17'19	4°07'01
minimum elong	941 Jun 25 j 07:33	7°  46'16	0°31'24	min. Earth dist.	950 Jan 06 j 22:00	19°  13'44	37.65136 AU
retrograde	941 Oct 05 j 09:53	9°  31'17		direct	950 Mar 26 j 13:34	18°  07'07	
opposition	941 Dec 24 j 16:11	8°  25'13	0°44'59	max. Earth dist.	950 Jul 05 j 07:32	19°  55'00	39.51855 AU
min. Earth dist.	941 Dec 26 j 22:59	8°  22'14	39.62994 AU				
direct	942 Mar 16 j 04:40	7°  17'52		conjunction	950 Jul 08 j 07:07	20°  00'05	4°07'06
max. Earth dist.	942 Jun 24 j 06:11	8°  59'12	41.51120 AU	minimum elong	950 Jul 08 j 07:00	20°  00'04	4°07'06
				retrograde	950 Oct 18 j 15:10	21°  52'29	
conjunction	942 Jun 26 j 21:41	9°  03'27	0°54'27	opposition	951 Jan 05 j 22:33	20°  43'40	4°33'19
minimum elong	942 Jun 26 j 21:39	9°  03'27	0°54'26	min. Earth dist.	951 Jan 08 j 14:42	20°  40'01	37.39436 AU
retrograde	942 Oct 07 j 03:11	10°  49'13		direct	951 Mar 28 j 06:15	19°  33'02	
opposition	942 Dec 26 j 04:35	9°  42'53	1°09'21	max. Earth dist.	951 Jul 07 j 00:36	21°  21'49	39.26013 AU
min. Earth dist.	942 Dec 28 j 12:53	9°  39'49	39.39048 AU				
direct	943 Mar 17 j 13:57	8°  35'14		conjunction	951 Jul 10 j 01:08	21°  27'01	4°32'05
max. Earth dist.	943 Jun 25 j 21:00	10°  17'25	41.27079 AU	minimum elong	951 Jul 10 j 01:00	21°  27'00	4°32'06
				retrograde	951 Oct 20 j 09:05	23°  20'19	
conjunction	943 Jun 28 j 12:13	10°  21'41	1°17'44	opposition	952 Jan 07 j 14:46	22°  11'08	4°59'48
minimum elong	943 Jun 28 j 12:10	10°  21'40	1°17'45	min. Earth dist.	952 Jan 10 j 06:58	22°  07'27	37.13691 AU
retrograde	943 Oct 08 j 18:59	12°  08'13		direct	952 Mar 28 j 23:22	21°  00'03	
opposition	943 Dec 27 j 17:20	11°  01'38	1°33'58	max. Earth dist.	952 Jul 07 j 18:19	22°  49'46	39.00123 AU
min. Earth dist.	943 Dec 30 j 02:08	10°  58'32	39.14949 AU				
direct	944 Mar 18 j 03:12	9°  53'41		conjunction	952 Jul 10 j 19:54	22°  55'05	4°57'13
max. Earth dist.	944 Jun 26 j 10:08	11°  36'36	41.02855 AU	minimum elong	952 Jul 10 j 19:44	22°  55'04	4°57'12
				retrograde	952 Oct 21 j 02:13	24°  49'20	
conjunction	944 Jun 29 j 03:14	11°  41'01	1°41'17	opposition	953 Jan 08 j 07:33	23°  39'47	5°26'28
minimum elong	944 Jun 29 j 03:10	11°  41'01	1°41'16	min. Earth dist.	953 Jan 11 j 01:07	23°  35'59	36.87951 AU
retrograde	944 Oct 09 j 11:25	13°  28'21		direct	953 Mar 30 j 15:32	22°  28'16	
opposition	944 Dec 28 j 06:21	12°  21'31	1°58'52	max. Earth dist.	953 Jul 09 j 13:54	24°  19'02	38.74271 AU
min. Earth dist.	944 Dec 30 j 16:10	12°  18'20	38.90654 AU				
direct	945 Mar 19 j 15:40	11°  13'14		conjunction	953 Jul 12 j 15:07	24°  24'23	5°22'28
max. Earth dist.	945 Jun 28 j 00:43	12°  56'57	40.78372 AU	minimum elong	953 Jul 12 j 14:57	24°  24'22	5°22'29
				retrograde	953 Oct 22 j 20:58	26°  19'37	
conjunction	945 Jun 30 j 18:51	13°  01'29	2°05'03	opposition	954 Jan 10 j 00:54	25°  09'42	5°53'16
minimum elong	945 Jun 30 j 18:48	13°  01'29	2°05'03	min. Earth dist.	954 Jan 12 j 17:49	25°  05'56	36.62276 AU
retrograde	945 Oct 11 j 00:28	14°  49'38		direct	954 Apr 01 j 07:35	23°  57'47	
opposition	945 Dec 29 j 20:03	13°  42'31	2°24'00	max. Earth dist.	954 Jul 11 j 08:02	25°  49'31	38.48482 AU
min. Earth dist.	946 Jan 01 j 07:32	13°  39'14	38.66085 AU				
direct	946 Mar 21 j 06:57	12°  33'54		conjunction	954 Jul 14 j 10:40	25°  55'00	5°47'51
max. Earth dist.	946 Jun 29 j 15:41	14°  18'26	40.53607 AU	minimum elong	954 Jul 14 j 10:29	25°  54'59	5°47'50
				retrograde	954 Oct 24 j 18:09	27°  51'17	
conjunction	946 Jul 02 j 10:40	14°  23'04	2°29'02	opposition	955 Jan 11 j 18:50	26°  41'01	6°20'12
minimum elong	946 Jul 02 j 10:36	14°  23'04	2°29'02	min. Earth dist.	955 Jan 14 j 12:57	26°  37'09	36.36691 AU
retrograde	946 Oct 12 j 15:35	16°  12'02		direct	955 Apr 02 j 22:44	25°  28'41	
opposition	946 Dec 31 j 10:04	15°  04'37	2°49'24	max. Earth dist.	955 Jul 13 j 05:01	27°  21'36	38.22766 AU
min. Earth dist.	947 Jan 02 j 21:44	15°  01'18	38.41231 AU				
direct	947 Mar 22 j 20:36	13°  55'39		conjunction	955 Jul 16 j 07:04	27°  27'05	6°13'18
max. Earth dist.	947 Jul 01 j 05:58	15°  40'56	40.28535 AU	minimum elong	955 Jul 16 j 06:51	27°  27'04	6°13'18
				retrograde	955 Oct 26 j 15:37	29°  24'26	
conjunction	947 Jul 04 j 03:06	15°  45'44	2°53'15	opposition	956 Jan 13 j 13:12	28°  13'50	6°47'15
minimum elong	947 Jul 04 j 03:00	15°  45'43	2°53'15	min. Earth dist.	956 Jan 16 j 07:25	28°  09'56	36.11168 AU
retrograde	947 Oct 14 j 08:21	17°  35'32		direct	956 Apr 03 j 17:13	27°  01'06	
opposition	948 Jan 02 j 00:31	16°  27'48	3°15'03	max. Earth dist.	956 Jul 14 j 00:27	28°  55'05	37.97089 AU
min. Earth dist.	948 Jan 04 j 14:20	16°  24'21	38.16096 AU				
direct	948 Mar 23 j 07:54	15°  18'26		conjunction	956 Jul 17 j 03:59	29°  00'44	6°38'51
max. Earth dist.	948 Jul 01 j 22:43	17°  04'36	40.03191 AU	minimum elong	956 Jul 17 j 03:46	29°  00'43	6°38'50
					956 Aug 20 j 14:40	0° 	
conjunction	948 Jul 04 j 20:04	17°  09'27	3°17'40	retrograde	956 Oct 27 j 15:45	30°  59'11	
minimum elong	948 Jul 04 j 19:58	17° 09'27	3°17'40		957 Jan 06 j 00:24	30°	
retrograde	948 Oct 15 j 01:33	19° 00'07		opposition	957 Jan 14 j 08:14	29° 48'14	7°14'22
opposition	949 Jan 02 j 15:24	17° 52'02	3°40'55	min. Earth dist.	957 Jan 17 j 03:01	29° 44'18	35.85675 AU
min. Earth dist.	949 Jan 05 j 05:26	17° 48'33	37.90708 AU	direct	957 Apr 05 j 11:33	28° 35'06	

	957 Jun 28 j 21:42	0°♄		conjunction	965 Aug 02 j 05:39	14°♄17'32	10°27'56
max. Earth dist.	957 Jul 15 j 21:52	0°♄30'16	37.71381 AU	minimum elong	965 Aug 02 j 05:18	14°♄17'30	10°27'56
					965 Aug 24 j 07:28	15°♄	
conjunction	957 Jul 19 j 01:39	0°♄36'00	7°04'27	retrograde	965 Nov 12 j 23:05	16°♄26'52	
minimum elong	957 Jul 19 j 01:24	0°♄35'59	7°04'27	opposition	966 Jan 29 j 18:05	15°♄12'15	11°18'00
retrograde	957 Oct 29 j 13:01	2°♄35'36		min. Earth dist.	966 Feb 01 j 15:49	15°♄07'53	33.57060 AU
opposition	958 Jan 16 j 04:03	1°♄24'18	7°41'35		966 Feb 06 j 22:12	15°♄	
min. Earth dist.	958 Jan 19 j 00:03	1°♄20'15	35.60142 AU	direct	966 Apr 20 j 15:58	13°♄54'53	
direct	958 Apr 07 j 07:14	0°♄10'45			966 Jun 29 j 06:43	15°♄	
max. Earth dist.	958 Jul 17 j 19:29	2°♄07'05	37.45631 AU	max. Earth dist.	966 Aug 01 j 02:17	16°♄01'26	35.41059 AU
conjunction	958 Jul 20 j 23:51	2°♄12'54	7°30'04	conjunction	966 Aug 04 j 09:15	16°♄07'56	10°52'36
minimum elong	958 Jul 20 j 23:37	2°♄12'53	7°30'04	minimum elong	966 Aug 04 j 08:54	16°♄07'55	10°52'36
retrograde	958 Oct 31 j 11:26	4°♄13'39		retrograde	966 Nov 15 j 02:33	18°♄18'37	
opposition	959 Jan 18 j 00:23	3°♄02'00	8°08'50	opposition	967 Jan 31 j 20:10	17°♄03'36	11°44'14
min. Earth dist.	959 Jan 20 j 20:15	2°♄57'56	35.34569 AU	min. Earth dist.	967 Feb 03 j 18:42	16°♄59'08	33.32705 AU
direct	959 Apr 09 j 03:39	1°♄48'01		direct	967 Apr 22 j 15:21	15°♄45'45	
max. Earth dist.	959 Jul 19 j 16:53	3°♄45'29	37.19807 AU	max. Earth dist.	967 Aug 03 j 07:51	17°♄53'49	35.16606 AU
conjunction	959 Jul 22 j 22:44	3°♄51'28	7°55'43	conjunction	967 Aug 06 j 13:35	18°♄00'18	11°16'55
minimum elong	959 Jul 22 j 22:27	3°♄51'27	7°55'44	minimum elong	967 Aug 06 j 13:13	18°♄00'16	11°16'55
retrograde	959 Nov 02 j 10:01	5°♄53'24		retrograde	967 Nov 17 j 06:11	20°♄12'20	
opposition	960 Jan 19 j 21:33	4°♄41'21	8°36'06	opposition	968 Feb 02 j 23:00	18°♄56'55	12°10'05
min. Earth dist.	960 Jan 22 j 19:05	4°♄37'10	35.08940 AU	min. Earth dist.	968 Feb 05 j 20:22	18°♄52'30	33.08724 AU
direct	960 Apr 09 j 21:59	3°♄26'55		direct	968 Apr 23 j 17:45	17°♄38'37	
max. Earth dist.	960 Jul 20 j 16:46	5°♄25'38	36.93939 AU	max. Earth dist.	968 Aug 04 j 12:11	19°♄48'05	34.92505 AU
conjunction	960 Jul 23 j 22:22	5°♄31'40	8°21'21	conjunction	968 Aug 07 j 18:45	19°♄54'41	11°40'52
minimum elong	960 Jul 23 j 22:06	5°♄31'39	8°21'21	minimum elong	968 Aug 07 j 18:23	19°♄54'39	11°40'52
retrograde	960 Nov 03 j 09:11	7°♄34'47		retrograde	968 Nov 18 j 12:25	22°♄08'06	
opposition	961 Jan 20 j 19:09	6°♄22'20	9°03'22	opposition	969 Feb 04 j 02:40	20°♄52'18	12°35'32
min. Earth dist.	961 Jan 23 j 16:19	6°♄18'08	34.83290 AU	min. Earth dist.	969 Feb 07 j 00:36	20°♄47'50	32.85100 AU
direct	961 Apr 11 j 18:49	5°♄07'26		direct	969 Apr 25 j 17:46	19°♄33'34	
max. Earth dist.	961 Jul 22 j 15:18	7°♄07'18	36.68064 AU	max. Earth dist.	969 Aug 06 j 19:39	21°♄44'37	34.68733 AU
conjunction	961 Jul 25 j 22:32	7°♄13'30	8°46'56	conjunction	969 Aug 10 j 00:51	21°♄51'10	12°04'23
minimum elong	961 Jul 25 j 22:14	7°♄13'29	8°46'56	minimum elong	969 Aug 10 j 00:28	21°♄51'08	12°04'23
retrograde	961 Nov 05 j 10:57	9°♄17'50		retrograde	969 Nov 20 j 18:42	24°♄06'00	
opposition	962 Jan 22 j 17:36	8°♄04'58	9°30'35	opposition	970 Feb 06 j 07:22	22°♄49'48	13°00'31
min. Earth dist.	962 Jan 25 j 15:54	8°♄00'40	34.57684 AU	min. Earth dist.	970 Feb 09 j 04:52	22°♄45'20	32.61784 AU
direct	962 Apr 13 j 14:57	6°♄49'34		direct	970 Apr 27 j 20:56	21°♄30'37	
max. Earth dist.	962 Jul 24 j 16:50	8°♄50'47	36.42246 AU	max. Earth dist.	970 Aug 09 j 01:39	23°♄43'05	34.45261 AU
conjunction	962 Jul 27 j 23:17	8°♄56'59	9°12'26	conjunction	970 Aug 12 j 07:28	23°♄49'45	12°27'25
minimum elong	962 Jul 27 j 22:59	8°♄56'58	9°12'26	minimum elong	970 Aug 12 j 07:06	23°♄49'43	12°27'25
retrograde	962 Nov 07 j 12:36	11°♄02'32		retrograde	970 Nov 23 j 04:12	26°♄06'00	
opposition	963 Jan 24 j 16:41	9°♄49'13	9°57'43	opposition	971 Feb 08 j 12:49	24°♄49'25	13°24'59
min. Earth dist.	963 Jan 27 j 15:03	9°♄44'54	34.32175 AU	min. Earth dist.	971 Feb 11 j 10:12	24°♄44'55	32.38768 AU
direct	963 Apr 15 j 14:21	8°♄33'20		direct	971 Apr 30 j 01:03	23°♄29'46	
max. Earth dist.	963 Jul 26 j 17:13	10°♄35'46	36.16566 AU	max. Earth dist.	971 Aug 11 j 10:12	25°♄43'47	34.22066 AU
conjunction	963 Jul 30 j 00:39	10°♄42'07	9°37'48	conjunction	971 Aug 14 j 15:16	25°♄50'27	12°49'55
minimum elong	963 Jul 30 j 00:20	10°♄42'06	9°37'48	minimum elong	971 Aug 14 j 14:52	25°♄50'25	12°49'55
retrograde	963 Nov 09 j 16:03	12°♄48'55		retrograde	971 Nov 25 j 12:52	28°♄08'06	
opposition	964 Jan 26 j 16:15	11°♄35'09	10°24'41	opposition	972 Feb 10 j 19:11	26°♄51'06	13°48'52
min. Earth dist.	964 Jan 29 j 14:36	11°♄30'49	34.06859 AU	min. Earth dist.	972 Feb 13 j 16:58	26°♄46'33	32.16030 AU
direct	964 Apr 16 j 13:02	10°♄18'45		direct	972 May 01 j 07:39	25°♄31'00	
max. Earth dist.	964 Jul 27 j 19:48	12°♄22'34	35.91086 AU	max. Earth dist.	972 Aug 12 j 18:41	27°♄46'29	33.99177 AU
conjunction	964 Jul 31 j 02:56	12°♄28'57	10°02'59	conjunction	972 Aug 15 j 23:46	27°♄53'14	13°11'50
minimum elong	964 Jul 31 j 02:36	12°♄28'55	10°02'59	minimum elong	972 Aug 15 j 23:23	27°♄53'12	13°11'50
retrograde	964 Nov 10 j 18:24	14°♄37'00			972 Oct 30 j 08:15	0°♄	
opposition	965 Jan 27 j 16:52	13°♄22'49	10°51'28	retrograde	972 Nov 26 j 23:40	0°♄12'17	
min. Earth dist.	965 Jan 30 j 15:44	13°♄18'24	33.81792 AU		972 Dec 24 j 21:51	30°♄	
direct	965 Apr 18 j 14:12	12°♄05'55		opposition	973 Feb 12 j 02:24	28°♄54'51	14°12'07
max. Earth dist.	965 Jul 29 j 22:56	14°♄11'06	35.65902 AU	min. Earth dist.	973 Feb 14 j 23:09	28°♄50'21	31.93611 AU
				direct	973 May 03 j 15:05	27°♄34'17	

max. Earth dist.	973 Aug 15 j 04:12	29° Ω 51'16	33.76611 AU	max. Earth dist.	981 Sep 02 j 20:06	17° Υ 42'41	32.16678 AU
conjunction	973 Aug 18 j 09:02	29° Ω 58'03	13°33'06	conjunction	981 Sep 05 j 14:02	17° Υ 48'56	15°49'37
minimum elong	973 Aug 18 j 08:38	29° Ω 58'01	13°33'05	minimum elong	981 Sep 05 j 13:44	17° Υ 48'54	15°49'37
	973 Aug 19 j 07:09	0° Υ		retrograde	981 Dec 17 j 21:40	20° Υ 20'11	
retrograde	973 Nov 29 j 09:01	2° Υ 18'30		opposition	982 Mar 04 j 10:51	18° Υ 59'22	16°58'01
opposition	974 Feb 14 j 10:38	1° Υ 00'39	14°34'39	min. Earth dist.	982 Mar 06 j 22:06	18° Υ 55'17	30.16468 AU
min. Earth dist.	974 Feb 17 j 07:59	0° Υ 56'04	31.71547 AU	direct	982 May 23 j 13:10	17° Υ 35'11	
	974 Mar 29 j 16:52	30° \Re Ω		max. Earth dist.	982 Sep 05 j 13:58	20° Υ 05'50	32.00007 AU
direct	974 May 05 j 21:45	29° Ω 39'37					
	974 Jun 11 j 10:22	0° Υ		conjunction	982 Sep 08 j 06:07	20° Υ 11'58	16°01'16
max. Earth dist.	974 Aug 17 j 15:32	1° Υ 58'09	33.54451 AU	minimum elong	982 Sep 08 j 05:52	20° Υ 11'56	16°01'16
				retrograde	982 Dec 20 j 14:44	22° Υ 44'26	
conjunction	974 Aug 20 j 19:04	2° Υ 04'53	13°53'37	opposition	983 Mar 07 j 02:49	21° Υ 23'19	17°10'00
minimum elong	974 Aug 20 j 18:42	2° Υ 04'51	13°53'37	min. Earth dist.	983 Mar 09 j 13:41	21° Υ 19'15	30.00373 AU
retrograde	974 Dec 01 j 20:20	4° Υ 26'42		direct	983 May 26 j 03:25	19° Υ 58'52	
opposition	975 Feb 16 j 19:29	3° Υ 08'27	14°56'23	max. Earth dist.	983 Sep 08 j 08:43	22° Υ 30'54	31.84097 AU
min. Earth dist.	975 Feb 19 j 15:20	3° Υ 03'56	31.49912 AU				
direct	975 May 08 j 06:40	1° Υ 46'57		conjunction	983 Sep 10 j 22:50	22° Υ 36'53	16°11'29
max. Earth dist.	975 Aug 20 j 02:14	4° Υ 06'55	33.32751 AU	minimum elong	983 Sep 10 j 22:35	22° Υ 36'52	16°11'29
				retrograde	983 Dec 23 j 10:13	25° Υ 10'30	
conjunction	975 Aug 23 j 05:51	4° Υ 13'43	14°13'20	opposition	984 Mar 08 j 19:35	23° Υ 49'07	17°20'26
minimum elong	975 Aug 23 j 05:27	4° Υ 13'41	14°13'20	min. Earth dist.	984 Mar 11 j 03:59	23° Υ 45'13	29.84997 AU
retrograde	975 Dec 04 j 07:33	6° Υ 36'56		direct	984 May 27 j 21:02	22° Υ 24'23	
opposition	976 Feb 19 j 05:21	5° Υ 18'14	15°17'13	max. Earth dist.	984 Sep 10 j 03:23	24° Υ 57'40	31.68923 AU
min. Earth dist.	976 Feb 22 j 01:27	5° Υ 13'41	31.28779 AU				
direct	976 May 09 j 13:28	3° Υ 56'16		conjunction	984 Sep 12 j 16:13	25° Υ 03'35	16°20'12
max. Earth dist.	976 Aug 21 j 15:58	6° Υ 17'51	33.11601 AU	minimum elong	984 Sep 12 j 16:01	25° Υ 03'33	16°20'11
				retrograde	984 Dec 25 j 03:45	27° Υ 38'17	
conjunction	976 Aug 24 j 17:26	6° Υ 24'32	14°32'08	opposition	985 Mar 11 j 13:14	26° Υ 16'37	17°29'13
minimum elong	976 Aug 24 j 17:05	6° Υ 24'30	14°32'09	min. Earth dist.	985 Mar 13 j 21:01	26° Υ 12'44	29.70357 AU
retrograde	976 Dec 05 j 18:19	8° Υ 49'06		direct	985 May 30 j 12:43	24° Υ 51'37	
opposition	977 Feb 20 j 16:04	7° Υ 30'00	15°37'03	max. Earth dist.	985 Sep 13 j 00:08	27° Υ 26'12	31.54534 AU
min. Earth dist.	977 Feb 23 j 10:27	7° Υ 25'32	31.08225 AU				
direct	977 May 12 j 00:13	6° Υ 07'36		conjunction	985 Sep 15 j 10:13	27° Υ 31'52	16°27'21
max. Earth dist.	977 Aug 24 j 04:23	8° Υ 30'36	32.91091 AU	minimum elong	985 Sep 15 j 10:01	27° Υ 31'51	16°27'21
					985 Dec 07 j 05:51	0° Ω	
conjunction	977 Aug 27 j 05:37	8° Υ 37'20	14°49'58	retrograde	985 Dec 27 j 22:01	0° Ω 07'35	
minimum elong	977 Aug 27 j 05:14	8° Υ 37'18	14°49'58		986 Jan 17 j 19:52	30° \Re Υ	
retrograde	977 Dec 08 j 07:39	11° Υ 03'16		opposition	986 Mar 14 j 07:33	28° Υ 45'39	17°36'18
opposition	978 Feb 23 j 03:41	9° Υ 43'46	15°55'48	min. Earth dist.	986 Mar 16 j 12:46	28° Υ 41'55	29.56480 AU
min. Earth dist.	978 Feb 25 j 21:09	9° Υ 39'21	30.88361 AU	direct	986 Jun 02 j 07:31	27° Υ 20'22	
direct	978 May 14 j 09:05	8° Υ 20'56		max. Earth dist.	986 Sep 15 j 19:35	29° Υ 56'00	31.40957 AU
max. Earth dist.	978 Aug 26 j 20:03	10° Υ 45'36	32.71308 AU		986 Sep 17 j 12:11	0° Ω	
conjunction	978 Aug 29 j 18:33	10° Υ 52'08	15°06'42	conjunction	986 Sep 18 j 04:32	0° Ω 01'36	16°32'52
minimum elong	978 Aug 29 j 18:13	10° Υ 52'06	15°06'42	minimum elong	986 Sep 18 j 04:24	0° Ω 01'36	16°32'52
retrograde	978 Dec 10 j 20:33	13° Υ 19'26		retrograde	986 Dec 30 j 17:41	2° Ω 38'14	
opposition	979 Feb 25 j 16:16	11° Υ 59'34	16°13'21	opposition	987 Mar 17 j 02:29	1° Ω 16'01	17°41'36
min. Earth dist.	979 Feb 28 j 08:20	11° Υ 55'12	30.69226 AU	min. Earth dist.	987 Mar 19 j 06:19	1° Ω 12'24	29.43420 AU
direct	979 May 16 j 19:59	10° Υ 36'21			987 May 11 j 19:56	30° \Re Υ	
max. Earth dist.	979 Aug 29 j 10:32	13° Υ 02'29	32.52310 AU	direct	987 Jun 05 j 00:16	29° Υ 50'30	
					987 Jun 28 j 20:16	0° Ω	
conjunction	979 Sep 01 j 08:16	13° Υ 08'59	15°22'16	max. Earth dist.	987 Sep 18 j 17:55	2° Ω 27'18	31.28250 AU
minimum elong	979 Sep 01 j 07:55	13° Υ 08'57	15°22'16				
retrograde	979 Dec 13 j 12:39	15° Υ 37'38		conjunction	987 Sep 20 j 23:31	2° Ω 32'37	16°36'42
opposition	980 Feb 28 j 05:25	14° Υ 17'25	16°29'37	minimum elong	987 Sep 20 j 23:24	2° Ω 32'36	16°36'42
min. Earth dist.	980 Mar 01 j 19:48	14° Υ 13'10	30.50878 AU	retrograde	988 Jan 02 j 11:27	5° Ω 10'04	
direct	980 May 18 j 08:07	12° Υ 53'51		opposition	988 Mar 18 j 21:57	3° Ω 47'36	17°45'03
max. Earth dist.	980 Aug 31 j 03:36	15° Υ 21'36	32.34098 AU	min. Earth dist.	988 Mar 20 j 23:30	3° Ω 44'06	29.31219 AU
				direct	988 Jun 06 j 19:44	2° Ω 21'50	
conjunction	980 Sep 02 j 22:56	15° Υ 27'56	15°36'36	max. Earth dist.	988 Sep 20 j 14:39	4° Ω 59'32	31.16483 AU
minimum elong	980 Sep 02 j 22:38	15° Υ 27'54	15°36'36				
retrograde	980 Dec 15 j 04:04	17° Υ 57'53		conjunction	988 Sep 22 j 18:43	5° Ω 04'42	16°38'46
opposition	981 Mar 01 j 19:47	16° Υ 37'22	16°44'32	minimum elong	988 Sep 22 j 18:38	5° Ω 04'42	16°38'45
min. Earth dist.	981 Mar 04 j 09:23	16° Υ 33'09	30.33293 AU	retrograde	989 Jan 04 j 07:00	7° Ω 42'55	
direct	981 May 20 j 22:09	15° Υ 13'30		opposition	989 Mar 21 j 18:03	6° Ω 20'11	17°46'34

min. Earth dist.	989 Mar 23 j 17:11	6° ♂ 16'52	29.19982 AU	conjunction	997 Oct 16 j 08:14	28° ♂ 24'54	15°32'05
direct	989 Jun 09 j 14:49	4° ♂ 54'12		minimum elong	997 Oct 16 j 08:29	28° ♂ 24'56	15°32'06
max. Earth dist.	989 Sep 23 j 14:07	7° ♂ 32'57	31.05738 AU		997 Nov 27 j 00:30	0° ♂	
				retrograde	998 Jan 28 j 02:12	1° ♂ 05'55	
conjunction	989 Sep 25 j 14:12	7° ♂ 37'46	16°39'00		998 Apr 04 j 13:26	30° ♂	
minimum elong	989 Sep 25 j 14:09	7° ♂ 37'45	16°39'01	opposition	998 Apr 14 j 23:01	29° ♂ 42'34	16°27'43
retrograde	990 Jan 07 j 01:31	10° ♂ 16'38		min. Earth dist.	998 Apr 15 j 20:31	29° ♂ 41'04	28.68467 AU
opposition	990 Mar 24 j 14:45	8° ♂ 53'41	17°46'06	direct	998 Jul 03 j 18:40	28° ♂ 16'38	
min. Earth dist.	990 Mar 26 j 11:39	8° ♂ 50'31	29.09770 AU		998 Sep 23 j 05:21	0° ♂	
direct	990 Jun 12 j 10:53	7° ♂ 27'32		max. Earth dist.	998 Oct 18 j 08:50	0° ♂ 59'36	30.60596 AU
max. Earth dist.	990 Sep 26 j 12:00	10° ♂ 07'03	30.96108 AU				
				conjunction	998 Oct 19 j 04:31	1° ♂ 01'35	15°15'19
conjunction	990 Sep 28 j 09:55	10° ♂ 11'39	16°37'22	minimum elong	998 Oct 19 j 04:48	1° ♂ 01'37	15°15'18
minimum elong	990 Sep 28 j 09:55	10° ♂ 11'39	16°37'22	retrograde	999 Jan 30 j 21:46	3° ♂ 42'22	
retrograde	991 Jan 09 j 22:33	12° ♂ 51'06		opposition	999 Apr 17 j 21:24	2° ♂ 19'05	16°08'54
opposition	991 Mar 27 j 11:34	11° ♂ 27'59	17°43'34	min. Earth dist.	999 Apr 18 j 15:49	2° ♂ 17'47	28.68083 AU
min. Earth dist.	991 Mar 29 j 04:59	11° ♂ 25'03	29.00679 AU	direct	999 Jul 06 j 18:29	0° ♂ 53'17	
direct	991 Jun 15 j 06:52	10° ♂ 01'42		max. Earth dist.	999 Oct 21 j 06:54	3° ♂ 36'00	30.61039 AU
max. Earth dist.	991 Sep 29 j 12:01	12° ♂ 42'05	30.87644 AU				
				conjunction	999 Oct 22 j 00:26	3° ♂ 37'47	14°56'48
conjunction	991 Oct 01 j 06:05	12° ♂ 46'19	16°33'49	minimum elong	999 Oct 22 j 00:45	3° ♂ 37'49	14°56'48
minimum elong	991 Oct 01 j 06:07	12° ♂ 46'19	16°33'50	retrograde	1000 Feb 02 j 17:36	6° ♂ 18'15	
retrograde	992 Jan 12 j 17:52	15° ♂ 26'16		opposition	1000 Apr 19 j 19:47	4° ♂ 55'00	15°48'13
opposition	992 Mar 29 j 09:06	14° ♂ 03'01	17°38'57	min. Earth dist.	1000 Apr 20 j 11:06	4° ♂ 53'56	28.68751 AU
min. Earth dist.	992 Mar 31 j 00:25	14° ♂ 00'14	28.92732 AU	direct	1000 Jul 08 j 16:36	3° ♂ 29'20	
direct	992 Jun 17 j 04:16	12° ♂ 36'41					
max. Earth dist.	992 Oct 01 j 10:51	15° ♂ 17'42	30.80386 AU	conjunction	1000 Oct 23 j 20:00	6° ♂ 13'17	14°36'35
				minimum elong	1000 Oct 23 j 20:19	6° ♂ 13'18	14°36'35
conjunction	992 Oct 03 j 02:11	15° ♂ 21'40	16°28'19	max. Earth dist.	1000 Oct 23 j 06:51	6° ♂ 11'57	30.62561 AU
minimum elong	992 Oct 03 j 02:16	15° ♂ 21'41	16°28'19	retrograde	1001 Feb 04 j 11:30	8° ♂ 53'19	
retrograde	993 Jan 14 j 15:41	18° ♂ 02'03		opposition	1001 Apr 22 j 18:00	7° ♂ 30'08	15°25'44
opposition	993 Apr 01 j 06:49	16° ♂ 38'42	17°32'14	min. Earth dist.	1001 Apr 23 j 06:29	7° ♂ 29'15	28.70482 AU
min. Earth dist.	993 Apr 02 j 18:07	16° ♂ 36'13	28.85950 AU	direct	1001 Jul 11 j 15:34	6° ♂ 04'37	
direct	993 Jun 20 j 02:35	15° ♂ 12'22					
max. Earth dist.	993 Oct 04 j 10:51	17° ♂ 54'02	30.74307 AU	conjunction	1001 Oct 26 j 15:01	8° ♂ 47'52	14°14'44
				minimum elong	1001 Oct 26 j 15:23	8° ♂ 47'55	14°14'45
conjunction	993 Oct 05 j 22:36	17° ♂ 57'39	16°20'53	max. Earth dist.	1001 Oct 26 j 04:15	8° ♂ 46'47	30.65201 AU
minimum elong	993 Oct 05 j 22:43	17° ♂ 57'40	16°20'54	retrograde	1002 Feb 07 j 07:27	11° ♂ 27'24	
retrograde	994 Jan 17 j 12:07	20° ♂ 38'22		opposition	1002 Apr 25 j 15:41	10° ♂ 04'17	15°01'31
opposition	994 Apr 04 j 04:58	19° ♂ 14'59	17°23'24	min. Earth dist.	1002 Apr 26 j 00:10	10° ♂ 03'41	28.73355 AU
min. Earth dist.	994 Apr 05 j 14:26	19° ♂ 12'37	28.80311 AU	direct	1002 Jul 14 j 12:55	8° ♂ 38'56	
direct	994 Jun 22 j 23:14	17° ♂ 48'41					
max. Earth dist.	994 Oct 07 j 10:26	20° ♂ 30'50	30.69396 AU	conjunction	1002 Oct 29 j 09:41	11° ♂ 21'26	13°51'19
				minimum elong	1002 Oct 29 j 10:03	11° ♂ 21'28	13°51'18
conjunction	994 Oct 08 j 18:57	20° ♂ 34'08	16°11'30	max. Earth dist.	1002 Oct 29 j 03:25	11° ♂ 20'48	30.69011 AU
minimum elong	994 Oct 08 j 19:06	20° ♂ 34'09	16°11'30	retrograde	1003 Feb 09 j 23:19	14° ♂ 00'21	
retrograde	995 Jan 20 j 10:30	23° ♂ 15'05		opposition	1003 Apr 28 j 13:12	12° ♂ 37'21	14°35'37
opposition	995 Apr 07 j 03:12	21° ♂ 51'41	17°12'31	min. Earth dist.	1003 Apr 28 j 19:04	12° ♂ 36'56	28.77397 AU
min. Earth dist.	995 Apr 08 j 08:46	21° ♂ 49'36	28.75770 AU	direct	1003 Jul 17 j 11:08	11° ♂ 12'13	
direct	995 Jun 25 j 22:59	20° ♂ 25'27					
max. Earth dist.	995 Oct 10 j 09:52	23° ♂ 07'58	30.65583 AU	conjunction	1003 Nov 01 j 03:43	13° ♂ 53'51	13°26'23
				minimum elong	1003 Nov 01 j 04:07	13° ♂ 53'53	13°26'23
conjunction	995 Oct 11 j 15:28	23° ♂ 10'58	16°00'14	max. Earth dist.	1003 Nov 01 j 00:09	13° ♂ 53'30	30.74033 AU
minimum elong	995 Oct 11 j 15:39	23° ♂ 10'59	16°00'14		1003 Nov 29 j 12:43	15° ♂	
retrograde	996 Jan 23 j 07:36	25° ♂ 52'03		retrograde	1004 Feb 12 j 17:42	16° ♂ 32'06	
opposition	996 Apr 09 j 01:42	24° ♂ 28'39	16°59'34	opposition	1004 Apr 30 j 10:08	15° ♂ 09'14	14°08'07
min. Earth dist.	996 Apr 10 j 05:20	24° ♂ 26'43	28.72298 AU	min. Earth dist.	1004 Apr 30 j 11:29	15° ♂ 09'09	28.82653 AU
direct	996 Jun 27 j 20:53	23° ♂ 02'30			1004 May 05 j 23:41	15° ♂	
max. Earth dist.	996 Oct 12 j 09:58	25° ♂ 45'19	30.62865 AU	direct	1004 Jul 19 j 08:30	13° ♂ 44'21	
					1004 Sep 26 j 08:23	15° ♂	
conjunction	996 Oct 13 j 12:00	25° ♂ 47'58	15°47'04				
minimum elong	996 Oct 13 j 12:13	25° ♂ 47'59	15°47'04	conjunction	1004 Nov 02 j 21:25	16° ♂ 25'05	13°00'01
retrograde	997 Jan 25 j 04:27	28° ♂ 29'03		minimum elong	1004 Nov 02 j 21:48	16° ♂ 25'07	13°00'01
opposition	997 Apr 12 j 00:20	27° ♂ 05'42	16°44'38	max. Earth dist.	1004 Nov 02 j 22:08	16° ♂ 25'09	30.80279 AU
min. Earth dist.	997 Apr 13 j 00:17	27° ♂ 04'00	28.69864 AU	retrograde	1005 Feb 14 j 10:07	19° ♂ 02'37	
direct	997 Jun 30 j 20:40	25° ♂ 39'39		opposition	1005 May 03 j 06:53	17° ♂ 39'56	13°39'08
max. Earth dist.	997 Oct 15 j 08:36	28° ♂ 22'31	30.61201 AU	min. Earth dist.	1005 May 03 j 05:43	17° ♂ 40'01	28.89124 AU

direct	1005 Jul 22 j 03:51	16° M 15'21		direct	1013 Aug 11 j 13:47	5° Δ 32'41	
conjunction	1005 Nov 05 j 14:21	18° M 55'05	12°32'19	conjunction	1013 Nov 24 j 09:03	8° Δ 02'44	8°15'42
minimum elong	1005 Nov 05 j 14:46	18° M 55'07	12°32'19	minimum elong	1013 Nov 24 j 09:23	8° Δ 02'46	8°15'42
max. Earth dist.	1005 Nov 05 j 18:13	18° M 55'28	30.87738 AU	max. Earth dist.	1013 Nov 25 j 12:29	8° Δ 05'20	31.82902 AU
retrograde	1006 Feb 17 j 03:42	21° M 31'50		retrograde	1014 Mar 07 j 19:59	10° Δ 31'25	
opposition	1006 May 06 j 02:56	20° M 09'22	13°08'46	opposition	1014 May 25 j 23:07	9° Δ 11'04	8°30'16
min. Earth dist.	1006 May 05 j 21:23	20° M 09'45	28.96764 AU	min. Earth dist.	1014 May 24 j 19:43	9° Δ 12'52	29.92607 AU
direct	1006 Jul 25 j 02:05	18° M 45'07		direct	1014 Aug 14 j 05:50	7° Δ 49'44	
conjunction	1006 Nov 08 j 06:55	21° M 23'49	12°03'24	conjunction	1014 Nov 26 j 20:08	10° Δ 18'24	7°40'47
minimum elong	1006 Nov 08 j 07:19	21° M 23'51	12°03'24	minimum elong	1014 Nov 26 j 20:26	10° Δ 18'26	7°40'46
max. Earth dist.	1006 Nov 08 j 14:15	21° M 24'32	30.96328 AU	max. Earth dist.	1014 Nov 28 j 01:26	10° Δ 21'09	31.98565 AU
retrograde	1007 Feb 19 j 20:15	23° M 59'43		retrograde	1015 Mar 10 j 06:18	12° Δ 45'54	
opposition	1007 May 08 j 22:29	22° M 37'30	12°37'07	min. Earth dist.	1015 May 27 j 06:03	11° Δ 27'53	30.08387 AU
min. Earth dist.	1007 May 08 j 14:33	22° M 38'02	29.05516 AU	opposition	1015 May 28 j 13:16	11° Δ 25'50	7°52'40
direct	1007 Jul 27 j 21:19	21° M 13'35		direct	1015 Aug 16 j 20:57	10° Δ 04'53	
conjunction	1007 Nov 10 j 22:55	23° M 51'12	11°33'21	conjunction	1015 Nov 29 j 06:31	12° Δ 32'10	7°05'31
minimum elong	1007 Nov 10 j 23:19	23° M 51'15	11°33'22	minimum elong	1015 Nov 29 j 06:48	12° Δ 32'12	7°05'30
max. Earth dist.	1007 Nov 11 j 09:33	23° M 52'15	31.06002 AU	max. Earth dist.	1015 Nov 30 j 15:12	12° Δ 35'13	32.15063 AU
retrograde	1008 Feb 22 j 12:20	26° M 26'13		retrograde	1016 Mar 11 j 15:40	14° Δ 58'31	
opposition	1008 May 10 j 17:35	25° M 04'15	12°04'21	min. Earth dist.	1016 May 28 j 17:49	13° Δ 40'54	30.25047 AU
min. Earth dist.	1008 May 10 j 05:57	25° M 05'03	29.15299 AU	opposition	1016 May 30 j 03:00	13° Δ 38'44	7°14'45
direct	1008 Jul 29 j 18:06	23° M 40'43		direct	1016 Aug 18 j 09:23	12° Δ 18'10	
conjunction	1008 Nov 12 j 14:09	26° M 17'11	11°02'19	conjunction	1016 Nov 30 j 16:02	14° Δ 44'05	6°29'59
minimum elong	1008 Nov 12 j 14:32	26° M 17'13	11°02'19	minimum elong	1016 Nov 30 j 16:17	14° Δ 44'06	6°29'59
max. Earth dist.	1008 Nov 13 j 03:24	26° M 18'28	31.16662 AU	max. Earth dist.	1016 Dec 02 j 03:14	14° Δ 47'20	32.32432 AU
retrograde	1009 Feb 24 j 04:41	28° M 51'15		retrograde	1017 Mar 14 j 01:10	17° Δ 09'16	
opposition	1009 May 13 j 12:15	27° M 29'33	11°30'33	min. Earth dist.	1017 May 31 j 03:02	15° Δ 52'11	30.42577 AU
min. Earth dist.	1009 May 12 j 21:58	27° M 30'31	29.26062 AU	opposition	1017 Jun 01 j 15:49	15° Δ 49'48	6°36'39
direct	1009 Aug 01 j 12:49	26° M 06'23		direct	1017 Aug 20 j 23:23	14° Δ 29'39	
conjunction	1009 Nov 15 j 04:59	28° M 41'40	10°30'22	conjunction	1017 Dec 03 j 00:54	16° Δ 54'12	5°54'18
minimum elong	1009 Nov 15 j 05:23	28° M 41'42	10°30'23	minimum elong	1017 Dec 03 j 01:08	16° Δ 54'14	5°54'18
max. Earth dist.	1009 Nov 15 j 21:49	28° M 43'18	31.28260 AU	max. Earth dist.	1017 Dec 04 j 14:35	16° Δ 57'40	32.50632 AU
	1009 Dec 20 j 11:12	0° Δ		retrograde	1018 Mar 16 j 11:16	19° Δ 18'14	
retrograde	1010 Feb 26 j 19:22	1° Δ 14'44		min. Earth dist.	1018 Jun 02 j 12:48	18° Δ 01'37	30.60958 AU
	1010 May 12 j 02:36	30° R M		opposition	1018 Jun 04 j 03:49	17° Δ 59'06	5°58'24
opposition	1010 May 16 j 06:05	29° M 53'18	10°55'51	direct	1018 Aug 23 j 11:21	16° Δ 39'23	
min. Earth dist.	1010 May 15 j 13:04	29° M 54'27	29.37720 AU				
direct	1010 Aug 04 j 09:23	28° M 30'31		conjunction	1018 Dec 05 j 09:08	19° Δ 02'36	5°18'30
	1010 Oct 20 j 00:14	0° Δ		minimum elong	1018 Dec 05 j 09:21	19° Δ 02'37	5°18'31
conjunction	1010 Nov 17 j 19:02	1° Δ 04'33	9°57'39	max. Earth dist.	1018 Dec 07 j 01:46	19° Δ 06'18	32.69631 AU
minimum elong	1010 Nov 17 j 19:24	1° Δ 04'35	9°57'39	retrograde	1019 Mar 18 j 19:54	21° Δ 25'28	
max. Earth dist.	1010 Nov 18 j 13:40	1° Δ 06'20	31.40717 AU	min. Earth dist.	1019 Jun 04 j 21:39	20° Δ 09'20	30.80100 AU
retrograde	1011 Mar 01 j 09:47	3° Δ 36'35		opposition	1019 Jun 06 j 15:07	20° Δ 06'41	5°20'08
opposition	1011 May 18 j 23:23	2° Δ 15'25	10°20'22	direct	1019 Aug 26 j 00:32	18° Δ 47'25	
min. Earth dist.	1011 May 18 j 03:14	2° Δ 16'46	29.50235 AU				
direct	1011 Aug 07 j 02:41	0° Δ 53'00		conjunction	1019 Dec 07 j 16:27	21° Δ 09'18	4°42'43
conjunction	1011 Nov 20 j 08:31	3° Δ 25'45	9°24'14	minimum elong	1019 Dec 07 j 16:38	21° Δ 09'19	4°42'43
minimum elong	1011 Nov 20 j 08:53	3° Δ 25'47	9°24'14	max. Earth dist.	1019 Dec 09 j 10:42	21° Δ 13'06	32.89332 AU
max. Earth dist.	1011 Nov 21 j 06:48	3° Δ 27'53	31.53990 AU	retrograde	1020 Mar 20 j 04:05	23° Δ 31'01	
retrograde	1012 Mar 02 j 21:13	5° Δ 56'41		min. Earth dist.	1020 Jun 06 j 05:31	22° Δ 15'25	30.99951 AU
opposition	1012 May 20 j 16:03	4° Δ 35'48	9°44'13	opposition	1020 Jun 08 j 01:47	22° Δ 12'36	4°41'55
min. Earth dist.	1012 May 19 j 17:51	4° Δ 37'17	29.63548 AU	direct	1020 Aug 27 j 10:30	20° Δ 53'46	
direct	1012 Aug 08 j 21:27	3° Δ 13'46		conjunction	1020 Dec 08 j 23:21	23° Δ 14'20	4°06'58
conjunction	1012 Nov 21 j 21:09	5° Δ 45'10	8°50'13	minimum elong	1020 Dec 08 j 23:31	23° Δ 14'20	4°06'59
minimum elong	1012 Nov 21 j 21:29	5° Δ 45'12	8°50'13	max. Earth dist.	1020 Dec 10 j 20:45	23° Δ 18'23	33.09673 AU
max. Earth dist.	1012 Nov 22 j 20:56	5° Δ 47'26	31.68052 AU	retrograde	1021 Mar 22 j 09:44	25° Δ 34'54	
retrograde	1013 Mar 05 j 10:28	8° Δ 14'59		min. Earth dist.	1021 Jun 08 j 14:06	24° Δ 19'44	31.20413 AU
min. Earth dist.	1013 May 22 j 06:08	6° Δ 56'05	29.77673 AU	opposition	1021 Jun 10 j 11:45	24° Δ 16'50	4°03'50
opposition	1013 May 23 j 07:55	6° Δ 54'22	9°07'29	direct	1021 Aug 29 j 23:18	22° Δ 58'27	
				conjunction	1021 Dec 11 j 05:24	25° Δ 17'41	3°31'22

minimum elong	1021 Dec 11 j 05:33	25° $\overline{\text{A}}$ 17'42	3°31'22	direct	1029 Sep 15 j 09:04	8° $\overline{\text{B}}$ 33'08	
max. Earth dist.	1021 Dec 13 j 03:40	25° $\overline{\text{A}}$ 21'48	33.30563 AU				
retrograde	1022 Mar 24 j 17:03	27° $\overline{\text{A}}$ 37'06		conjunction	1029 Dec 26 j 06:54	10° $\overline{\text{B}}$ 42'07	-1°-2'-30
min. Earth dist.	1022 Jun 10 j 20:22	26° $\overline{\text{A}}$ 22'27	31.41411 AU	minimum elong	1029 Dec 26 j 06:51	10° $\overline{\text{B}}$ 42'07	1°02'31
opposition	1022 Jun 12 j 20:53	26° $\overline{\text{A}}$ 19'24	3°25'57	max. Earth dist.	1029 Dec 28 j 19:16	10° $\overline{\text{B}}$ 47'08	35.11852 AU
direct	1022 Sep 01 j 09:27	25° $\overline{\text{A}}$ 01'27		retrograde	1030 Apr 08 j 13:12	12° $\overline{\text{B}}$ 52'32	
				min. Earth dist.	1030 Jun 26 j 07:45	11° $\overline{\text{B}}$ 40'58	33.23973 AU
conjunction	1022 Dec 13 j 11:00	27° $\overline{\text{A}}$ 19'22	2°55'58	opposition	1030 Jun 28 j 20:45	11° $\overline{\text{B}}$ 37'18	-1°-23'-32
minimum elong	1022 Dec 13 j 11:07	27° $\overline{\text{A}}$ 19'22	2°55'57	direct	1030 Sep 17 j 14:58	10° $\overline{\text{B}}$ 22'22	
max. Earth dist.	1022 Dec 15 j 11:55	27° $\overline{\text{A}}$ 23'40	33.51913 AU				
retrograde	1023 Mar 26 j 20:16	29° $\overline{\text{A}}$ 37'38		conjunction	1030 Dec 28 j 07:08	12° $\overline{\text{B}}$ 30'10	-1°-34'-46
min. Earth dist.	1023 Jun 13 j 04:14	28° $\overline{\text{A}}$ 23'21	31.62858 AU	minimum elong	1030 Dec 28 j 07:05	12° $\overline{\text{B}}$ 30'10	1°34'47
opposition	1023 Jun 15 j 05:23	28° $\overline{\text{A}}$ 20'16	2°48'20	max. Earth dist.	1030 Dec 30 j 20:07	12° $\overline{\text{B}}$ 35'13	35.36301 AU
direct	1023 Sep 03 j 19:00	27° $\overline{\text{A}}$ 02'44		retrograde	1031 Apr 10 j 13:02	14° $\overline{\text{B}}$ 39'34	
				min. Earth dist.	1031 Jun 28 j 07:57	13° $\overline{\text{B}}$ 28'29	33.48654 AU
conjunction	1023 Dec 15 j 15:56	29° $\overline{\text{A}}$ 19'19	2°20'48	opposition	1031 Jun 30 j 23:30	13° $\overline{\text{B}}$ 24'41	-1°-57'-25
minimum elong	1023 Dec 15 j 16:02	29° $\overline{\text{A}}$ 19'20	2°20'48	direct	1031 Sep 19 j 18:39	12° $\overline{\text{B}}$ 10'09	
max. Earth dist.	1023 Dec 17 j 17:43	29° $\overline{\text{A}}$ 23'41	33.73671 AU				
	1024 Jan 04 j 07:56	0° $\overline{\text{B}}$		conjunction	1031 Dec 30 j 06:53	14° $\overline{\text{B}}$ 16'50	-2°-6'-29
retrograde	1024 Mar 27 j 23:59	1° $\overline{\text{B}}$ 36'27		minimum elong	1031 Dec 30 j 06:48	14° $\overline{\text{B}}$ 16'50	2°06'30
min. Earth dist.	1024 Jun 14 j 09:20	0° $\overline{\text{B}}$ 22'38	31.84702 AU	max. Earth dist.	1032 Jan 01 j 21:55	14° $\overline{\text{B}}$ 22'01	35.61096 AU
opposition	1024 Jun 16 j 13:09	0° $\overline{\text{B}}$ 19'25	2°11'02	retrograde	1032 Apr 11 j 12:25	16° $\overline{\text{B}}$ 25'16	
	1024 Jun 29 j 16:26	30° $\overline{\text{R}}$ $\overline{\text{A}}$		min. Earth dist.	1032 Jun 29 j 09:48	15° $\overline{\text{B}}$ 14'32	33.73683 AU
direct	1024 Sep 05 j 03:34	29° $\overline{\text{A}}$ 02'16		opposition	1032 Jul 02 j 01:56	15° $\overline{\text{B}}$ 10'43	-2°-30'-41
	1024 Nov 07 j 04:13	0° $\overline{\text{B}}$		direct	1032 Sep 20 j 20:32	13° $\overline{\text{B}}$ 56'36	
conjunction	1024 Dec 16 j 20:05	1° $\overline{\text{B}}$ 17'32	1°45'56	conjunction	1032 Dec 31 j 06:04	16° $\overline{\text{B}}$ 02'11	-2°-37'-39
minimum elong	1024 Dec 16 j 20:09	1° $\overline{\text{B}}$ 17'32	1°45'56	minimum elong	1032 Dec 31 j 05:58	16° $\overline{\text{B}}$ 02'11	2°37'41
max. Earth dist.	1024 Dec 18 j 23:50	1° $\overline{\text{B}}$ 22'02	33.95773 AU	max. Earth dist.	1033 Jan 02 j 22:20	16° $\overline{\text{B}}$ 07'26	35.86190 AU
retrograde	1025 Mar 30 j 03:40	3° $\overline{\text{B}}$ 33'31		retrograde	1033 Apr 13 j 11:40	18° $\overline{\text{B}}$ 09'39	
min. Earth dist.	1025 Jun 16 j 15:37	2° $\overline{\text{B}}$ 20'02	32.06914 AU	min. Earth dist.	1033 Jul 01 j 09:46	16° $\overline{\text{B}}$ 59'22	33.98967 AU
opposition	1025 Jun 18 j 20:21	2° $\overline{\text{B}}$ 16'47	1°34'06	opposition	1033 Jul 04 j 03:37	16° $\overline{\text{B}}$ 55'28	-3°-3'-19
direct	1025 Sep 07 j 09:39	1° $\overline{\text{B}}$ 00'00		direct	1033 Sep 22 j 22:32	15° $\overline{\text{B}}$ 41'45	
conjunction	1025 Dec 18 j 23:42	3° $\overline{\text{B}}$ 13'57	1°11'25	conjunction	1034 Jan 02 j 04:46	17° $\overline{\text{B}}$ 46'17	-3°-8'-14
minimum elong	1025 Dec 18 j 23:45	3° $\overline{\text{B}}$ 13'58	1°11'25	minimum elong	1034 Jan 02 j 04:40	17° $\overline{\text{B}}$ 46'16	3°08'15
max. Earth dist.	1025 Dec 21 j 04:58	3° $\overline{\text{B}}$ 18'33	34.18221 AU	max. Earth dist.	1034 Jan 04 j 21:45	17° $\overline{\text{B}}$ 51'32	36.11478 AU
retrograde	1026 Apr 01 j 06:25	5° $\overline{\text{B}}$ 28'47		retrograde	1034 Apr 15 j 13:08	19° $\overline{\text{B}}$ 52'48	
min. Earth dist.	1026 Jun 18 j 19:49	4° $\overline{\text{B}}$ 15'42	32.29478 AU	min. Earth dist.	1034 Jul 03 j 09:52	18° $\overline{\text{B}}$ 42'53	34.24447 AU
opposition	1026 Jun 21 j 02:28	4° $\overline{\text{B}}$ 12'20	0°57'35	opposition	1034 Jul 06 j 04:39	18° $\overline{\text{B}}$ 38'58	-3°-35'-19
direct	1026 Sep 09 j 17:18	2° $\overline{\text{B}}$ 55'55		direct	1034 Sep 24 j 21:01	17° $\overline{\text{B}}$ 25'39	
conjunction	1026 Dec 21 j 02:28	5° $\overline{\text{B}}$ 08'35	0°37'16	conjunction	1035 Jan 04 j 03:09	19° $\overline{\text{B}}$ 29'08	-3°-38'-14
minimum elong	1026 Dec 21 j 02:29	5° $\overline{\text{B}}$ 08'35	0°37'16	minimum elong	1035 Jan 04 j 03:02	19° $\overline{\text{B}}$ 29'08	3°38'16
max. Earth dist.	1026 Dec 23 j 08:49	5° $\overline{\text{B}}$ 13'13	34.41010 AU	max. Earth dist.	1035 Jan 06 j 21:42	19° $\overline{\text{B}}$ 34'29	36.36905 AU
retrograde	1027 Apr 03 j 10:33	7° $\overline{\text{B}}$ 22'16		retrograde	1035 Apr 17 j 11:08	21° $\overline{\text{B}}$ 34'44	
min. Earth dist.	1027 Jun 20 j 23:45	6° $\overline{\text{B}}$ 09'33	32.52445 AU	min. Earth dist.	1035 Jul 05 j 10:10	20° $\overline{\text{B}}$ 25'09	34.50022 AU
opposition	1027 Jun 23 j 08:06	6° $\overline{\text{B}}$ 06'06	0°21'32	opposition	1035 Jul 08 j 05:15	20° $\overline{\text{B}}$ 21'14	-4°-6'-39
direct	1027 Sep 11 j 22:30	4° $\overline{\text{B}}$ 50'02		direct	1035 Sep 26 j 22:04	19° $\overline{\text{B}}$ 08'18	
conjunction	1027 Dec 23 j 04:34	7° $\overline{\text{B}}$ 01'25	0°03'37	conjunction	1036 Jan 06 j 00:47	21° $\overline{\text{B}}$ 10'46	-4°-7'-38
minimum elong	1027 Dec 23 j 04:33	7° $\overline{\text{B}}$ 01'25	0°03'37	minimum elong	1036 Jan 06 j 00:39	21° $\overline{\text{B}}$ 10'45	4°07'38
behind sun begin	1027 Dec 22 j 22:15	7° $\overline{\text{B}}$ 00'55		max. Earth dist.	1036 Jan 08 j 19:08	21° $\overline{\text{B}}$ 16'02	36.62383 AU
behind sun end	1027 Dec 23 j 10:52	7° $\overline{\text{B}}$ 01'56		retrograde	1036 Apr 18 j 10:13	23° $\overline{\text{B}}$ 15'25	
max. Earth dist.	1027 Dec 25 j 13:28	7° $\overline{\text{B}}$ 06'14	34.64196 AU	min. Earth dist.	1036 Jul 06 j 08:41	22° $\overline{\text{B}}$ 06'14	34.75646 AU
desc. node	1028 Jan 31 j 00:19	8° $\overline{\text{B}}$ 15'43		opposition	1036 Jul 09 j 05:22	22° $\overline{\text{B}}$ 02'15	-4°-37'-19
retrograde	1028 Apr 04 j 12:14	9° $\overline{\text{B}}$ 13'59		direct	1036 Sep 27 j 22:14	20° $\overline{\text{B}}$ 49'41	
min. Earth dist.	1028 Jun 22 j 03:23	8° $\overline{\text{B}}$ 01'37	32.75832 AU				
opposition	1028 Jun 24 j 13:02	7° $\overline{\text{B}}$ 58'07	0°-14'-1	conjunction	1037 Jan 06 j 22:13	22° $\overline{\text{B}}$ 51'08	-4°-36'-25
direct	1028 Sep 13 j 05:16	6° $\overline{\text{B}}$ 42'24		minimum elong	1037 Jan 06 j 22:05	22° $\overline{\text{B}}$ 51'07	4°36'26
				max. Earth dist.	1037 Jan 09 j 18:15	22° $\overline{\text{B}}$ 56'30	36.87865 AU
conjunction	1028 Dec 24 j 05:59	8° $\overline{\text{B}}$ 52'34	0°-29'-44	retrograde	1037 Apr 20 j 05:57	24° $\overline{\text{B}}$ 54'52	
minimum elong	1028 Dec 24 j 05:58	8° $\overline{\text{B}}$ 52'34	0°29'45	min. Earth dist.	1037 Jul 08 j 08:35	23° $\overline{\text{B}}$ 45'56	35.01261 AU
max. Earth dist.	1028 Dec 26 j 15:40	8° $\overline{\text{B}}$ 57'24	34.87807 AU	opposition	1037 Jul 11 j 04:52	23° $\overline{\text{B}}$ 41'59	-5°-7'-19
retrograde	1029 Apr 06 j 14:35	11° $\overline{\text{B}}$ 04'03		direct	1037 Sep 30 j 00:17	22° $\overline{\text{B}}$ 29'46	
min. Earth dist.	1029 Jun 24 j 04:50	9° $\overline{\text{B}}$ 52'08	32.99687 AU				
opposition	1029 Jun 26 j 17:10	9° $\overline{\text{B}}$ 48'29	0°-49'-3	conjunction	1038 Jan 08 j 19:02	24° $\overline{\text{B}}$ 30'12	-5°-4'-36

minimum elong	1038 Jan 08 j 18:53	24°☾30'11	5°04'36	minimum elong	1046 Jan 21 j 00:13	6°☾58'05	8°27'02
max. Earth dist.	1038 Jan 11 j 14:44	24°☾35'31	37.13328 AU	max. Earth dist.	1046 Jan 24 j 02:01	7°☾03'34	39.18745 AU
retrograde	1038 Apr 22 j 02:10	26°☾33'01		retrograde	1046 May 04 j 06:13	8°☾54'18	
min. Earth dist.	1038 Jul 10 j 05:48	25°☾24'27	35.26860 AU	min. Earth dist.	1046 Jul 22 j 22:00	7°☾48'03	37.33944 AU
opposition	1038 Jul 13 j 03:41	25°☾20'25	-5°-36'-38	opposition	1046 Jul 26 j 00:22	7°☾43'55	-9°-6'-8
direct	1038 Oct 02 j 00:21	24°☾08'31		direct	1046 Oct 14 j 22:38	6°☾34'34	
conjunction	1039 Jan 10 j 15:16	26°☾07'56	-5°-32'-9	conjunction	1047 Jan 22 j 17:24	8°☾26'53	-8°-49'-27
minimum elong	1039 Jan 10 j 15:06	26°☾07'55	5°32'11	minimum elong	1047 Jan 22 j 17:11	8°☾26'52	8°49'29
max. Earth dist.	1039 Jan 13 j 12:05	26°☾13'18	37.38765 AU	max. Earth dist.	1047 Jan 25 j 19:36	8°☾32'22	39.44447 AU
retrograde	1039 Apr 23 j 20:41	28°☾09'51		retrograde	1047 May 05 j 23:20	10°☾22'22	
min. Earth dist.	1039 Jul 12 j 04:21	27°☾01'31	35.52480 AU	min. Earth dist.	1047 Jul 24 j 16:27	9°☾16'24	37.59764 AU
opposition	1039 Jul 15 j 02:05	26°☾57'30	-6°-5'-16	opposition	1047 Jul 27 j 18:55	9°☾12'17	-9°-29'-14
direct	1039 Oct 03 j 23:35	25°☾45'55		direct	1047 Oct 16 j 17:08	8°☾03'14	
conjunction	1040 Jan 12 j 11:05	27°☾44'20	-5°-59'-4	conjunction	1048 Jan 24 j 10:01	9°☾54'47	-9°-11'-16
minimum elong	1040 Jan 12 j 10:54	27°☾44'19	5°59'05	minimum elong	1048 Jan 24 j 09:48	9°☾54'46	9°11'16
max. Earth dist.	1040 Jan 15 j 08:45	27°☾49'44	37.64249 AU	max. Earth dist.	1048 Jan 27 j 11:29	10°☾00'10	39.69959 AU
retrograde	1040 Apr 24 j 15:48	29°☾45'21		retrograde	1048 May 06 j 18:09	11°☾49'34	
min. Earth dist.	1040 Jul 13 j 00:54	28°☾37'20	35.78165 AU	min. Earth dist.	1048 Jul 25 j 10:16	10°☾43'52	37.85389 AU
opposition	1040 Jul 15 j 23:51	28°☾33'16	-6°-33'-13	opposition	1048 Jul 28 j 13:12	10°☾39'44	-9°-51'-40
direct	1040 Oct 04 j 21:56	27°☾21'59		direct	1048 Oct 17 j 09:24	9°☾31'00	
conjunction	1041 Jan 13 j 06:15	29°☾19'27	-6°-25'-21	conjunction	1049 Jan 25 j 02:25	11°☾21'47	-9°-32'-28
minimum elong	1041 Jan 13 j 06:04	29°☾19'26	6°25'22	minimum elong	1049 Jan 25 j 02:12	11°☾21'46	9°32'29
max. Earth dist.	1041 Jan 16 j 04:20	29°☾24'50	37.89805 AU	max. Earth dist.	1049 Jan 28 j 04:49	11°☾27'12	39.95236 AU
	1041 Feb 04 j 16:43	0°☾		retrograde	1049 May 08 j 10:11	13°☾15'51	
retrograde	1041 Apr 26 j 13:07	1°☾19'36		min. Earth dist.	1049 Jul 27 j 05:09	12°☾10'20	38.10741 AU
min. Earth dist.	1041 Jul 14 j 21:13	0°☾11'52	36.03964 AU	opposition	1049 Jul 30 j 07:04	12°☾06'17	-10°-13'-27
opposition	1041 Jul 17 j 21:11	0°☾07'47	-7°00'-27	direct	1049 Oct 19 j 04:05	10°☾57'49	
	1041 Jul 23 j 14:03	30°☾☾		conjunction	1050 Jan 26 j 18:27	12°☾47'51	-9°-53'-5
direct	1041 Oct 06 j 16:43	28°☾56'48		minimum elong	1050 Jan 26 j 18:14	12°☾47'50	9°53'05
	1041 Dec 15 j 19:23	0°☾		max. Earth dist.	1050 Jan 29 j 19:37	12°☾53'09	40.20240 AU
conjunction	1042 Jan 15 j 01:13	0°☾53'20	-6°-50'-58	retrograde	1050 May 10 j 02:14	14°☾41'11	
minimum elong	1042 Jan 15 j 01:02	0°☾53'19	6°50'59	min. Earth dist.	1050 Jul 28 j 21:34	13°☾35'57	38.35824 AU
max. Earth dist.	1042 Jan 18 j 00:56	0°☾58'48	38.15472 AU	opposition	1050 Aug 01 j 00:16	13°☾31'52	-10°-34'-37
retrograde	1042 Apr 28 j 07:22	2°☾52'39		direct	1050 Oct 20 j 21:48	12°☾23'40	
min. Earth dist.	1042 Jul 16 j 17:39	1°☾45'11	36.29864 AU	conjunction	1051 Jan 28 j 10:03	14°☾12'57	-10°-13'-6
opposition	1042 Jul 19 j 17:46	1°☾41'06	-7°-26'-59	minimum elong	1051 Jan 28 j 09:49	14°☾12'56	10°13'07
direct	1042 Oct 08 j 14:34	0°☾30'26		max. Earth dist.	1051 Jan 31 j 11:52	14°☾18'16	40.44977 AU
conjunction	1043 Jan 16 j 19:35	2°☾26'04	-7°-15'-57		1051 Feb 25 j 12:43	15°☾	
minimum elong	1043 Jan 16 j 19:23	2°☾26'04	7°15'58	retrograde	1051 May 11 j 16:24	16°☾05'36	
max. Earth dist.	1043 Jan 19 j 18:59	2°☾31'29	38.41238 AU	min. Earth dist.	1051 Jul 30 j 15:42	15°☾00'30	38.60671 AU
retrograde	1043 Apr 30 j 03:13	4°☾24'34			1051 Jul 31 j 00:58	15°☾☾	
min. Earth dist.	1043 Jul 18 j 12:18	3°☾17'27	36.55865 AU	opposition	1051 Aug 02 j 17:21	14°☾56'30	-10°-55'-9
opposition	1043 Jul 21 j 14:03	3°☾13'18	-7°-52'-49	direct	1051 Oct 22 j 15:58	13°☾48'33	
direct	1043 Oct 10 j 10:13	2°☾02'57			1052 Jan 08 j 00:23	15°☾	
conjunction	1044 Jan 18 j 13:30	3°☾57'44	-7°-40'-17	conjunction	1052 Jan 30 j 01:10	15°☾37'05	-10°-32'-32
minimum elong	1044 Jan 18 j 13:19	3°☾57'44	7°40'17	minimum elong	1052 Jan 30 j 00:58	15°☾37'04	10°32'33
max. Earth dist.	1044 Jan 21 j 14:41	4°☾03'14	38.67073 AU	max. Earth dist.	1052 Feb 02 j 03:01	15°☾42'22	40.69514 AU
retrograde	1044 Apr 30 j 20:44	5°☾55'26		retrograde	1052 May 12 j 05:41	17°☾29'03	
min. Earth dist.	1044 Jul 19 j 08:40	4°☾48'35	36.81918 AU	min. Earth dist.	1052 Jul 31 j 07:27	16°☾24'12	38.85332 AU
opposition	1044 Jul 22 j 10:02	4°☾44'28	-8°-17'-57	opposition	1052 Aug 03 j 09:51	16°☾20'10	-11°-15'-2
direct	1044 Oct 11 j 07:03	3°☾34'28		direct	1052 Oct 23 j 10:26	15°☾12'27	
conjunction	1045 Jan 19 j 07:10	5°☾28'24	-8°-3'-58	conjunction	1053 Jan 30 j 15:58	17°☾00'17	-10°-51'-22
minimum elong	1045 Jan 19 j 06:57	5°☾28'23	8°03'59	minimum elong	1053 Jan 30 j 15:45	17°☾00'16	10°51'22
max. Earth dist.	1045 Jan 22 j 08:17	5°☾33'52	38.92936 AU	max. Earth dist.	1053 Feb 02 j 17:34	17°☾05'31	40.93886 AU
retrograde	1045 May 02 j 13:03	7°☾25'20		retrograde	1053 May 13 j 22:14	18°☾51'35	
min. Earth dist.	1045 Jul 21 j 02:35	6°☾18'50	37.07965 AU	min. Earth dist.	1053 Aug 01 j 23:35	17°☾46'56	39.09874 AU
opposition	1045 Jul 24 j 05:17	6°☾14'40	-8°-42'-23	opposition	1053 Aug 05 j 01:58	17°☾42'55	-11°-34'-17
direct	1045 Oct 13 j 03:29	5°☾04'58		direct	1053 Oct 25 j 01:16	16°☾35'28	
conjunction	1046 Jan 21 j 00:25	6°☾58'06	-8°-27'-1	conjunction	1054 Feb 01 j 06:34	18°☾22'36	-11°-9'-36

minimum elong	1054 Feb 01 j 06:22	18° 22 '35	11°09'37	retrograde	1062 May 26 j 00:41	0° 41 '00	
max. Earth dist.	1054 Feb 04 j 09:11	18° 27 '52	41.18156 AU		1062 Jul 27 j 12:41	30° 08 '	
retrograde	1054 May 15 j 13:05	20° 13 '16		min. Earth dist.	1062 Aug 14 j 11:21	29° 38 '10	41.22988 AU
min. Earth dist.	1054 Aug 03 j 15:36	19° 08 '48	39.34303 AU	opposition	1062 Aug 17 j 11:58	29° 34 '23	-14°00'-31
opposition	1054 Aug 06 j 17:40	19° 04 '49	-11°-52'-55	direct	1062 Nov 06 j 10:03	28° 29 '07	
direct	1054 Oct 26 j 16:26	17° 57 '37			1063 Feb 06 j 12:01	0° 41 '	
conjunction	1055 Feb 02 j 20:35	19° 44 '05	-11°-27'-14	conjunction	1063 Feb 13 j 04:47	0° 41 '049	-13°-28'-27
minimum elong	1055 Feb 02 j 20:22	19° 44 '04	11°27'15	minimum elong	1063 Feb 13 j 04:37	0° 41 '048	13°28'28
max. Earth dist.	1055 Feb 05 j 22:25	19° 49 '16	41.42327 AU	max. Earth dist.	1063 Feb 16 j 05:08	0° 41 '541	43.28311 AU
retrograde	1055 May 17 j 05:02	21° 34 '07		retrograde	1063 May 27 j 10:59	1° 41 '5621	
min. Earth dist.	1055 Aug 05 j 05:56	20° 29 '57	39.58642 AU	min. Earth dist.	1063 Aug 16 j 01:46	0° 41 '5336	41.45103 AU
opposition	1055 Aug 08 j 09:04	20° 25 '56	-12°-10'-54	opposition	1063 Aug 19 j 01:02	0° 41 '4953	-14°-14'-1
direct	1055 Oct 28 j 06:08	19° 18 '59			1063 Oct 03 j 07:28	30° 08 '	
conjunction	1056 Feb 04 j 10:31	21° 04 '48	-11°-44'-18	direct	1063 Nov 08 j 00:41	29° 44 '48	
minimum elong	1056 Feb 04 j 10:19	21° 04 '48	11°44'19		1063 Dec 12 j 23:12	0° 41 '	
max. Earth dist.	1056 Feb 07 j 13:31	21° 10 '02	41.66397 AU	conjunction	1064 Feb 14 j 16:43	1° 41 '2556	-13°-41'-19
retrograde	1056 May 17 j 17:48	22° 54 '15		minimum elong	1064 Feb 14 j 16:32	1° 41 '2555	13°41'20
min. Earth dist.	1056 Aug 05 j 22:00	21° 50 '15	39.82865 AU	max. Earth dist.	1064 Feb 17 j 16:50	1° 41 '3046	43.50086 AU
opposition	1056 Aug 09 j 00:11	21° 46 '17	-12°-28'-17	retrograde	1064 May 27 j 20:38	3° 41 '1055	
direct	1056 Oct 28 j 22:13	20° 39 '37		min. Earth dist.	1064 Aug 16 j 14:15	2° 41 '0819	41.66910 AU
conjunction	1057 Feb 05 j 00:06	22° 24 '49	-12°00'-47	opposition	1064 Aug 19 j 13:33	2° 41 '0437	-14°-27'-1
minimum elong	1057 Feb 04 j 23:53	22° 24 '48	12°00'47	direct	1064 Nov 08 j 15:27	0° 41 '5942	
max. Earth dist.	1057 Feb 08 j 02:30	22° 29 '59	41.90347 AU	conjunction	1065 Feb 15 j 04:13	2° 41 '4016	-13°-53'-40
retrograde	1057 May 19 j 06:09	24° 13 '40		minimum elong	1065 Feb 15 j 04:04	2° 41 '4016	13°53'41
min. Earth dist.	1057 Aug 07 j 11:49	23° 09 '57	40.06930 AU	max. Earth dist.	1065 Feb 18 j 03:25	2° 41 '4501	43.71584 AU
opposition	1057 Aug 10 j 14:51	23° 05 '58	-12°-45'-4	retrograde	1065 May 29 j 09:19	4° 41 '2444	
direct	1057 Oct 30 j 13:47	21° 59 '33		min. Earth dist.	1065 Aug 18 j 02:53	3° 41 '2217	41.88482 AU
conjunction	1058 Feb 06 j 13:27	23° 44 '09	-12°-16'-42	opposition	1065 Aug 21 j 01:55	3° 41 '1836	-14°-39'-28
minimum elong	1058 Feb 06 j 13:15	23° 44 '08	12°16'44	direct	1065 Nov 10 j 03:15	2° 41 '1352	
max. Earth dist.	1058 Feb 09 j 15:51	23° 49 '18	42.14104 AU	conjunction	1066 Feb 16 j 15:38	3° 41 '5354	-14°-5'-32
retrograde	1058 May 20 j 19:08	25° 32 '27		minimum elong	1066 Feb 16 j 15:28	3° 41 '5353	14°05'33
min. Earth dist.	1058 Aug 09 j 03:08	24° 28 '55	40.30792 AU	max. Earth dist.	1066 Feb 19 j 15:41	3° 41 '5841	43.92866 AU
opposition	1058 Aug 12 j 05:14	24° 24 '59	-13°-1'-15	retrograde	1066 May 30 j 21:04	5° 41 '3751	
direct	1058 Nov 01 j 04:57	23° 18 '50		min. Earth dist.	1066 Aug 19 j 15:35	4° 41 '3531	42.09838 AU
conjunction	1059 Feb 08 j 02:39	25° 02 '50	-12°-32'-5	opposition	1066 Aug 22 j 13:49	4° 41 '3154	-14°-51'-25
minimum elong	1059 Feb 08 j 02:28	25° 02 '50	12°32'05	direct	1066 Nov 11 j 14:58	3° 41 '2721	
max. Earth dist.	1059 Feb 11 j 05:22	25° 07 '59	42.37636 AU	conjunction	1067 Feb 18 j 02:40	5° 41 '0653	-14°-16'-53
retrograde	1059 May 22 j 07:39	26° 50 '36		minimum elong	1067 Feb 18 j 02:32	5° 41 '0653	14°16'54
min. Earth dist.	1059 Aug 10 j 17:29	25° 47 '16	40.54375 AU	max. Earth dist.	1067 Feb 21 j 01:31	5° 41 '1134	44.13967 AU
opposition	1059 Aug 13 j 19:20	25° 43 '22	-13°-16'-52	retrograde	1067 Jun 01 j 10:21	6° 41 '5020	
direct	1059 Nov 02 j 20:14	24° 37 '27		min. Earth dist.	1067 Aug 21 j 02:32	5° 41 '4814	42.31020 AU
conjunction	1060 Feb 09 j 15:25	26° 20 '53	-12°-46'-56	opposition	1067 Aug 24 j 01:34	5° 41 '4435	-15°-2'-50
minimum elong	1060 Feb 09 j 15:13	26° 20 '52	12°46'57	direct	1067 Nov 13 j 00:14	4° 41 '4014	
max. Earth dist.	1060 Feb 12 j 16:50	26° 25 '55	42.60862 AU	conjunction	1068 Feb 19 j 13:26	6° 41 '1917	-14°-27'-46
retrograde	1060 May 22 j 23:53	28° 08 '05		minimum elong	1068 Feb 19 j 13:17	6° 41 '1917	14°27'46
min. Earth dist.	1060 Aug 11 j 07:29	27° 04 '57	40.77638 AU	max. Earth dist.	1068 Feb 22 j 12:50	6° 41 '2359	44.34886 AU
opposition	1060 Aug 14 j 09:16	27° 01 '05	-13°-31'-57	retrograde	1068 Jun 01 j 19:58	8° 41 '0217	
direct	1060 Nov 03 j 07:13	25° 55 '24		min. Earth dist.	1068 Aug 21 j 15:30	7° 41 '0018	42.52010 AU
conjunction	1061 Feb 10 j 04:16	27° 38 '16	-13°-1'-16	opposition	1068 Aug 24 j 13:12	6° 41 '5643	-15°-13'-44
minimum elong	1061 Feb 10 j 04:05	27° 38 '15	13°01'16	direct	1068 Nov 13 j 12:18	5° 41 '5236	
max. Earth dist.	1061 Feb 13 j 06:08	27° 43 '17	42.83733 AU	conjunction	1069 Feb 20 j 00:12	7° 41 '3111	-14°-38'-9
retrograde	1061 May 24 j 12:55	29° 24 '55		minimum elong	1069 Feb 20 j 00:04	7° 41 '3111	14°38'10
min. Earth dist.	1061 Aug 12 j 22:33	28° 21 '53	41.00510 AU	max. Earth dist.	1069 Feb 22 j 23:15	7° 41 '3550	44.55616 AU
opposition	1061 Aug 15 j 22:45	28° 18 '06	-13°-46'-29	retrograde	1069 Jun 03 j 04:10	9° 41 '1344	
direct	1061 Nov 04 j 20:42	27° 12 '39		min. Earth dist.	1069 Aug 23 j 02:12	8° 41 '1158	42.72775 AU
conjunction	1062 Feb 11 j 16:45	28° 54 '55	-13°-15'-6	opposition	1069 Aug 26 j 00:15	8° 41 '0823	-15°-24'-9
minimum elong	1062 Feb 11 j 16:34	28° 54 '54	13°15'08	direct	1069 Nov 15 j 01:38	7° 41 '0429	
max. Earth dist.	1062 Feb 14 j 17:09	28° 59 '49	43.06218 AU	conjunction	1070 Feb 21 j 10:37	8° 41 '4238	-14°-48'-4
	1062 Mar 26 j 21:06	0° 41 '		minimum elong	1070 Feb 21 j 10:29	8° 41 '4238	14°48'05

max. Earth dist.	1070 Feb 24 j 08:48	8° 11 47'13	44.76099 AU	opposition	1078 Sep 05 j 19:52	18° 11 33'17	-16°-38'-2
retrograde	1070 Jun 04 j 15:43	10° 11 24'46		direct	1078 Nov 25 j 20:34	17° 11 30'57	
min. Earth dist.	1070 Aug 24 j 14:06	9° 11 23'10	42.93280 AU				
opposition	1070 Aug 27 j 11:22	9° 11 19'38	-15°-34'-4	conjunction	1079 Mar 04 j 01:28	19° 11 05'21	-15°-58'-35
direct	1070 Nov 16 j 12:40	8° 11 15'58		minimum elong	1079 Mar 04 j 01:24	19° 11 05'21	15°58'36
				max. Earth dist.	1079 Mar 06 j 17:39	19° 11 09'23	46.43384 AU
conjunction	1071 Feb 22 j 20:55	9° 11 53'41	-14°-57'-32	retrograde	1079 Jun 15 j 07:11	20° 11 43'49	
minimum elong	1071 Feb 22 j 20:49	9° 11 53'40	14°57'34	min. Earth dist.	1079 Sep 04 j 14:06	19° 11 43'17	44.60022 AU
max. Earth dist.	1071 Feb 25 j 19:31	9° 11 58'16	44.96297 AU	opposition	1079 Sep 07 j 04:57	19° 11 40'09	-16°-44'-9
retrograde	1071 Jun 06 j 02:01	11° 11 35'25		direct	1079 Nov 27 j 05:12	18° 11 37'57	
min. Earth dist.	1071 Aug 26 j 01:55	10° 11 33'58	43.13448 AU				
opposition	1071 Aug 28 j 22:12	10° 11 30'29	-15°-43'-33	conjunction	1080 Mar 04 j 10:10	20° 11 12'00	-16°-4'-24
direct	1071 Nov 17 j 23:58	9° 11 27'02		minimum elong	1080 Mar 04 j 10:08	20° 11 12'00	16°04'25
				max. Earth dist.	1080 Mar 07 j 01:51	20° 11 15'59	46.60280 AU
conjunction	1072 Feb 24 j 07:05	11° 11 04'20	-15°-6'-34	retrograde	1080 Jun 15 j 14:29	21° 11 50'06	
minimum elong	1072 Feb 24 j 06:58	11° 11 04'20	15°06'35	min. Earth dist.	1080 Sep 05 j 00:20	20° 11 49'38	44.76896 AU
max. Earth dist.	1072 Feb 27 j 03:57	11° 11 08'47	45.16139 AU	opposition	1080 Sep 07 j 13:54	20° 11 46'35	-16°-49'-51
retrograde	1072 Jun 06 j 15:06	12° 11 45'40		direct	1080 Nov 27 j 14:47	19° 11 44'32	
min. Earth dist.	1072 Aug 26 j 12:37	11° 11 44'24	43.33236 AU				
opposition	1072 Aug 29 j 08:47	11° 11 40'57	-15°-52'-34	conjunction	1081 Mar 05 j 18:51	21° 11 18'14	-16°-9'-50
direct	1072 Nov 18 j 07:42	10° 11 37'42		minimum elong	1081 Mar 05 j 18:47	21° 11 18'14	16°09'51
				max. Earth dist.	1081 Mar 08 j 10:32	21° 11 22'12	46.76929 AU
conjunction	1073 Feb 24 j 17:15	12° 11 14'35	-15°-15'-12	retrograde	1081 Jun 16 j 21:02	22° 11 55'59	
minimum elong	1073 Feb 24 j 17:09	12° 11 14'35	15°15'13	min. Earth dist.	1081 Sep 06 j 09:23	21° 11 55'39	44.93482 AU
max. Earth dist.	1073 Feb 27 j 14:09	12° 11 19'01	45.35559 AU	opposition	1081 Sep 08 j 22:35	21° 11 52'37	-16°-55'-9
retrograde	1073 Jun 08 j 01:37	13° 11 55'31		direct	1081 Nov 29 j 01:45	20° 11 50'44	
min. Earth dist.	1073 Aug 28 j 01:05	12° 11 54'19	43.52567 AU				
opposition	1073 Aug 30 j 19:17	12° 11 50'59	-16°-1'-11	conjunction	1082 Mar 07 j 03:11	22° 11 24'05	-16°-14'-52
direct	1073 Nov 19 j 17:30	11° 11 47'55		minimum elong	1082 Mar 07 j 03:10	22° 11 24'05	16°14'53
				max. Earth dist.	1082 Mar 09 j 17:18	22° 11 27'57	46.93280 AU
conjunction	1074 Feb 26 j 03:13	13° 11 24'24	-15°-23'-25	retrograde	1082 Jun 18 j 07:07	24° 11 01'31	
minimum elong	1074 Feb 26 j 03:07	13° 11 24'23	15°23'25	min. Earth dist.	1082 Sep 07 j 18:25	23° 11 01'18	45.09760 AU
max. Earth dist.	1074 Feb 28 j 22:39	13° 11 28'43	45.54523 AU	opposition	1082 Sep 10 j 07:08	22° 11 58'18	-17°00'-3
retrograde	1074 Jun 09 j 09:52	15° 11 04'53		direct	1082 Nov 30 j 09:35	21° 11 56'35	
min. Earth dist.	1074 Aug 29 j 11:08	14° 11 03'52	43.71419 AU				
opposition	1074 Sep 01 j 05:21	14° 11 00'32	-16°-9'-22	conjunction	1083 Mar 08 j 11:35	23° 11 29'37	-16°-19'-33
direct	1074 Nov 21 j 03:58	12° 11 57'37		minimum elong	1083 Mar 08 j 11:32	23° 11 29'37	16°19'34
				max. Earth dist.	1083 Mar 11 j 01:59	23° 11 33'28	47.09298 AU
conjunction	1075 Feb 27 j 12:52	14° 11 33'41	-15°-31'-15	retrograde	1083 Jun 19 j 16:55	25° 11 06'43	
minimum elong	1075 Feb 27 j 12:46	14° 11 33'41	15°31'16	min. Earth dist.	1083 Sep 09 j 04:33	24° 11 06'35	45.25664 AU
max. Earth dist.	1075 Mar 02 j 07:12	14° 11 37'55	45.73018 AU	opposition	1083 Sep 11 j 15:36	24° 11 03'41	-17°-4'-35
retrograde	1075 Jun 10 j 18:00	16° 11 13'46		direct	1083 Dec 01 j 17:04	23° 11 02'08	
min. Earth dist.	1075 Aug 30 j 22:46	15° 11 12'48	43.89830 AU				
opposition	1075 Sep 02 j 15:27	15° 11 09'33	-16°-17'-10	conjunction	1084 Mar 08 j 19:47	24° 11 34'50	-16°-23'-52
direct	1075 Nov 22 j 16:06	14° 11 06'48		minimum elong	1084 Mar 08 j 19:46	24° 11 34'50	16°23'53
				max. Earth dist.	1084 Mar 11 j 08:33	24° 11 38'35	47.24926 AU
conjunction	1076 Feb 28 j 22:21	15° 11 42'25	-15°-38'-41	retrograde	1084 Jun 20 j 02:53	26° 11 11'37	
minimum elong	1076 Feb 28 j 22:16	15° 11 42'25	15°38'41	min. Earth dist.	1084 Sep 09 j 12:52	25° 11 11'38	45.41136 AU
max. Earth dist.	1076 Mar 02 j 16:47	15° 11 46'39	45.91102 AU	opposition	1084 Sep 11 j 23:51	25° 11 08'44	-17°-8'-46
retrograde	1076 Jun 11 j 01:55	17° 11 22'06		direct	1084 Dec 01 j 23:03	24° 11 07'20	
min. Earth dist.	1076 Aug 31 j 09:10	16° 11 21'13	44.07835 AU				
opposition	1076 Sep 03 j 01:10	16° 11 18'01	-16°-24'-32	conjunction	1085 Mar 10 j 04:01	25° 11 39'45	-16°-27'-51
direct	1076 Nov 23 j 04:21	15° 11 15'24		minimum elong	1085 Mar 10 j 03:59	25° 11 39'45	16°27'51
				max. Earth dist.	1085 Mar 12 j 15:43	25° 11 43'25	47.40079 AU
conjunction	1077 Mar 01 j 07:35	16° 11 50'36	-15°-45'-43	retrograde	1085 Jun 21 j 09:33	27° 11 16'13	
minimum elong	1077 Mar 01 j 07:30	16° 11 50'36	15°45'44	min. Earth dist.	1085 Sep 10 j 23:09	26° 11 16'16	45.56112 AU
max. Earth dist.	1077 Mar 04 j 00:19	16° 11 54'42	46.08820 AU	opposition	1085 Sep 13 j 07:57	26° 11 13'29	-17°-12'-36
retrograde	1077 Jun 12 j 13:54	18° 11 29'52		direct	1085 Dec 03 j 08:11	25° 11 12'13	
min. Earth dist.	1077 Sep 01 j 18:43	17° 11 29'06	44.25514 AU				
opposition	1077 Sep 04 j 10:33	17° 11 25'55	-16°-31'-30	conjunction	1086 Mar 11 j 12:13	26° 11 44'20	-16°-31'-31
direct	1077 Nov 24 j 11:38	16° 11 23'26		minimum elong	1086 Mar 11 j 12:13	26° 11 44'20	16°31'32
				max. Earth dist.	1086 Mar 13 j 23:15	26° 11 47'57	47.54733 AU
conjunction	1078 Mar 02 j 16:43	17° 11 58'14	-15°-52'-21	retrograde	1086 Jun 22 j 14:31	28° 11 20'29	
minimum elong	1078 Mar 02 j 16:39	17° 11 58'14	15°52'22	min. Earth dist.	1086 Sep 12 j 07:46	27° 11 20'38	45.70557 AU
max. Earth dist.	1078 Mar 05 j 09:51	18° 11 02'20	46.26231 AU	opposition	1086 Sep 14 j 15:53	27° 11 17'52	-17°-16'-7
retrograde	1078 Jun 13 j 23:22	19° 11 37'06		direct	1086 Dec 04 j 19:02	26° 11 16'44	
min. Earth dist.	1078 Sep 03 j 05:32	18° 11 36'23	44.42897 AU				

conjunction	1087 Mar 12 j 19:55	27° 48 '32	-16°-34'-52	direct	1094 Dec 13 j 02:49	4° 39 '26	
minimum elong	1087 Mar 12 j 19:54	27° 48 '32	16°34'53				
max. Earth dist.	1087 Mar 15 j 04:50	27° 48 '00	47.68866 AU	conjunction	1095 Mar 21 j 05:50	6° 09 '05	-16°-49'-52
retrograde	1087 Jun 23 j 23:40	29° 48 '24		minimum elong	1095 Mar 21 j 05:54	6° 09 '05	16°49'53
min. Earth dist.	1087 Sep 13 j 16:37	28° 48 '24	45.84506 AU	max. Earth dist.	1095 Mar 23 j 09:03	6° 12 '08	48.68775 AU
opposition	1087 Sep 15 j 23:47	28° 48 '21	-17°-19'-19	retrograde	1095 Jul 02 j 10:57	7° 42 '43	
direct	1087 Dec 06 j 02:41	27° 48 '20	'51	min. Earth dist.	1095 Sep 22 j 08:17	6° 43 '28	46.83333 AU
				opposition	1095 Sep 24 j 08:08	6° 41 '10	-17°-32'-38
conjunction	1088 Mar 13 j 03:46	28° 48 '52	-16°-37'-54	direct	1095 Dec 14 j 08:30	5° 41 '03	
minimum elong	1088 Mar 13 j 03:46	28° 48 '52	16°37'56				
max. Earth dist.	1088 Mar 15 j 12:42	28° 48 '55	47.82524 AU	conjunction	1096 Mar 21 j 12:47	7° 10 '29	-16°-50'-18
	1088 May 03 j 17:35	0° 00 '		minimum elong	1096 Mar 21 j 12:49	7° 10 '30	16°50'18
retrograde	1088 Jun 24 j 07:33	0° 00 '27	'51	max. Earth dist.	1096 Mar 23 j 15:18	7° 13 '30	48.79818 AU
	1088 Aug 16 j 00:45	30° 00 ' R		retrograde	1096 Jul 02 j 14:23	8° 43 '53	
min. Earth dist.	1088 Sep 14 j 01:54	29° 00 '28	45.97996 AU	min. Earth dist.	1096 Sep 22 j 15:04	7° 44 '45	46.94156 AU
opposition	1088 Sep 16 j 07:19	29° 00 '25	-17°-22'-11	opposition	1096 Sep 24 j 14:29	7° 42 '28	-17°-32'-49
direct	1088 Dec 06 j 10:53	28° 00 '24	'33	direct	1096 Dec 14 j 17:16	6° 42 '28	
conjunction	1089 Mar 14 j 11:21	29° 00 '55	-16°-40'-37	conjunction	1097 Mar 22 j 19:34	8° 11 '42	-16°-50'-26
minimum elong	1089 Mar 14 j 11:21	29° 00 '55	16°40'38	minimum elong	1097 Mar 22 j 19:38	8° 11 '42	16°50'27
max. Earth dist.	1089 Mar 16 j 18:37	29° 00 '59	47.95774 AU	max. Earth dist.	1097 Mar 24 j 19:57	8° 14 '34	48.90400 AU
	1089 Mar 17 j 10:01	0° 00 '		retrograde	1097 Jul 03 j 20:24	9° 44 '52	
retrograde	1089 Jun 25 j 16:01	1° 00 '30	'55	min. Earth dist.	1097 Sep 23 j 23:03	8° 45 '46	47.04498 AU
min. Earth dist.	1089 Sep 15 j 09:10	0° 00 '31	46.11102 AU	opposition	1097 Sep 25 j 20:58	8° 43 '33	-17°-32'-43
opposition	1089 Sep 17 j 14:40	0° 00 '28	'39	direct	1097 Dec 16 j 01:06	7° 43 '39	
	1089 Oct 13 j 01:23	30° 00 ' R					
direct	1089 Dec 07 j 16:09	29° 00 '27	'49	conjunction	1098 Mar 24 j 02:21	9° 12 '40	-16°-50'-18
	1090 Jan 30 j 19:58	0° 00 '		minimum elong	1098 Mar 24 j 02:24	9° 12 '40	16°50'18
				max. Earth dist.	1098 Mar 26 j 02:25	9° 15 '30	49.00477 AU
conjunction	1090 Mar 15 j 18:42	0° 00 '58	-16°-43'00	retrograde	1098 Jul 05 j 02:07	10° 45 '37	
minimum elong	1090 Mar 15 j 18:42	0° 00 '58	16°43'01	min. Earth dist.	1098 Sep 25 j 06:57	9° 46 '31	47.14304 AU
max. Earth dist.	1090 Mar 18 j 01:26	1° 00 '02	48.08655 AU	opposition	1098 Sep 27 j 03:17	9° 44 '23	-17°-32'-22
retrograde	1090 Jun 26 j 22:29	2° 00 '33	'37	direct	1098 Dec 17 j 09:16	8° 44 '33	
min. Earth dist.	1090 Sep 16 j 18:08	1° 00 '33	46.23873 AU				
opposition	1090 Sep 18 j 21:56	1° 00 '31	-17°-26'-53	conjunction	1099 Mar 25 j 08:57	10° 13 '20	-16°-49'-54
direct	1090 Dec 08 j 23:15	0° 00 '30	'43	minimum elong	1099 Mar 25 j 09:01	10° 13 '20	16°49'56
				max. Earth dist.	1099 Mar 27 j 06:55	10° 16 '03	49.10045 AU
conjunction	1091 Mar 17 j 02:02	2° 00 '01	-16°-45'-2	retrograde	1099 Jul 06 j 10:47	11° 46 '02	
minimum elong	1091 Mar 17 j 02:03	2° 00 '01	16°45'03	min. Earth dist.	1099 Sep 26 j 13:34	10° 47 '00	47.23612 AU
max. Earth dist.	1091 Mar 19 j 08:27	2° 00 '04	48.21248 AU	opposition	1099 Sep 28 j 09:27	10° 44 '54	-17°-31'-43
retrograde	1091 Jun 28 j 02:43	3° 00 '35	'58	direct	1099 Dec 18 j 13:46	9° 45 '07	
min. Earth dist.	1091 Sep 18 j 01:08	2° 00 '36	46.36351 AU				
opposition	1091 Sep 20 j 04:58	2° 00 '33	-17°-28'-43	conjunction	1100 Mar 25 j 15:24	11° 13 '41	-16°-49'-14
direct	1091 Dec 10 j 08:27	1° 00 '33	'17	minimum elong	1100 Mar 25 j 15:28	11° 13 '41	16°49'15
				max. Earth dist.	1100 Mar 27 j 12:32	11° 16 '20	49.19120 AU
conjunction	1092 Mar 17 j 09:03	3° 00 '03	-16°-46'-44	retrograde	1100 Jul 06 j 18:10	12° 46 '08	
minimum elong	1092 Mar 17 j 09:03	3° 00 '03	16°46'45	min. Earth dist.	1100 Sep 26 j 21:45	11° 47 '03	47.32451 AU
max. Earth dist.	1092 Mar 19 j 13:59	3° 00 '06	48.33560 AU	opposition	1100 Sep 28 j 15:35	11° 45 '03	-17°-30'-49
retrograde	1092 Jun 28 j 10:01	4° 00 '38	'01	direct	1100 Dec 18 j 18:37	10° 45 '20	
min. Earth dist.	1092 Sep 18 j 09:02	3° 00 '38	46.48561 AU				
opposition	1092 Sep 20 j 12:01	3° 00 '36	-17°-30'-12				
direct	1092 Dec 10 j 16:17	2° 00 '35	'34				
conjunction	1093 Mar 18 j 16:13	4° 00 '05	-16°-48'-6				
minimum elong	1093 Mar 18 j 16:16	4° 00 '05	16°48'07				
max. Earth dist.	1093 Mar 20 j 21:31	4° 00 '08	48.45600 AU				
retrograde	1093 Jun 29 j 17:50	5° 00 '39	'48				
min. Earth dist.	1093 Sep 19 j 16:56	4° 00 '40	46.60474 AU				
opposition	1093 Sep 21 j 18:43	4° 00 '37	-17°-31'-20				
direct	1093 Dec 11 j 23:37	3° 00 '37	'36				
conjunction	1094 Mar 19 j 23:07	5° 00 '07	-16°-49'-9				
minimum elong	1094 Mar 19 j 23:09	5° 00 '07	16°49'10				
max. Earth dist.	1094 Mar 22 j 02:46	5° 00 '10	48.57355 AU				
retrograde	1094 Jul 01 j 04:18	6° 00 '41	'21				
min. Earth dist.	1094 Sep 20 j 23:32	5° 00 '42	46.72084 AU				
opposition	1094 Sep 23 j 01:24	5° 00 '39	-17°-32'-8				

conjunction	1100 Mar 25 j 15:24	11°V13'41	-16°-49'-14	minimum elong	1108 Apr 02 j 16:05	19°V06'50	16°33'44
minimum elong	1100 Mar 25 j 15:28	11°V13'41	16°49'15	max. Earth dist.	1108 Apr 04 j 06:20	19°V09'03	49.79274 AU
max. Earth dist.	1100 Mar 27 j 12:32	11°V16'20	49.19120 AU	retrograde	1108 Jul 14 j 12:44	20°V37'48	
retrograde	1100 Jul 06 j 18:10	12°V46'08		min. Earth dist.	1108 Oct 05 j 01:16	19°V39'05	47.90941 AU
min. Earth dist.	1100 Sep 26 j 21:45	11°V47'03	47.32451 AU	opposition	1108 Oct 06 j 11:53	19°V37'26	-17°-12'-57
opposition	1100 Sep 28 j 15:35	11°V45'03	-17°-30'-49	direct	1108 Dec 26 j 19:38	18°V38'22	
direct	1100 Dec 18 j 18:37	10°V45'20					
conjunction	1101 Mar 26 j 21:52	12°V13'40	-16°-48'-18	conjunction	1109 Apr 03 j 21:54	20°V05'27	-16°-30'-32
minimum elong	1101 Mar 26 j 21:57	12°V13'40	16°48'20	minimum elong	1109 Apr 03 j 22:01	20°V05'27	16°30'33
max. Earth dist.	1101 Mar 28 j 18:12	12°V16'16	49.27770 AU	max. Earth dist.	1109 Apr 05 j 09:59	20°V07'32	49.85182 AU
retrograde	1101 Jul 07 j 22:08	13°V45'52		retrograde	1109 Jul 15 j 20:58	21°V36'18	
min. Earth dist.	1101 Sep 28 j 03:40	12°V46'50	47.40880 AU	min. Earth dist.	1109 Oct 06 j 07:08	20°V37'38	47.96539 AU
opposition	1101 Sep 29 j 21:16	12°V44'51	-17°-29'-37	opposition	1109 Oct 07 j 17:01	20°V36'02	-17°-9'-29
direct	1101 Dec 20 j 01:03	11°V45'11		direct	1109 Dec 27 j 23:17	19°V37'02	
conjunction	1102 Mar 28 j 04:02	13°V13'19	-16°-47'-5	conjunction	1110 Apr 05 j 03:51	21°V04'01	-16°-27'-8
minimum elong	1102 Mar 28 j 04:07	13°V13'19	16°47'05	minimum elong	1110 Apr 05 j 03:59	21°V04'01	16°27'09
max. Earth dist.	1102 Mar 29 j 22:41	13°V15'48	49.36042 AU	max. Earth dist.	1110 Apr 06 j 14:51	21°V06'02	49.90562 AU
retrograde	1102 Jul 09 j 03:14	14°V45'17		retrograde	1110 Jul 17 j 04:31	22°V34'43	
min. Earth dist.	1102 Sep 29 j 10:45	13°V46'16	47.48971 AU	opposition	1110 Oct 08 j 22:20	21°V34'32	-17°-5'-47
opposition	1102 Oct 01 j 03:07	13°V44'20	-17°-28'-7	min. Earth dist.	1110 Oct 07 j 14:43	21°V36'01	48.01591 AU
direct	1102 Dec 21 j 08:11	12°V44'44		direct	1110 Dec 29 j 02:36	20°V35'35	
conjunction	1103 Mar 29 j 10:07	14°V12'39	-16°-45'-34	conjunction	1111 Apr 06 j 09:37	22°V02'27	-16°-23'-30
minimum elong	1103 Mar 29 j 10:12	14°V12'39	16°45'36	minimum elong	1111 Apr 06 j 09:44	22°V02'27	16°23'30
max. Earth dist.	1103 Mar 31 j 05:03	14°V15'09	49.43997 AU	max. Earth dist.	1111 Apr 07 j 19:25	22°V04'23	49.95415 AU
retrograde	1103 Jul 10 j 07:39	15°V44'25		retrograde	1111 Jul 18 j 09:25	23°V32'59	
min. Earth dist.	1103 Sep 30 j 17:24	14°V45'26	47.56745 AU	min. Earth dist.	1111 Oct 08 j 20:15	22°V34'20	48.06104 AU
opposition	1103 Oct 02 j 08:49	14°V43'32	-17°-26'-19	opposition	1111 Oct 10 j 03:27	22°V32'52	-17°-1'-51
direct	1103 Dec 22 j 16:23	13°V44'01		direct	1111 Dec 30 j 06:56	21°V33'58	
conjunction	1104 Mar 29 j 16:10	15°V11'45	-16°-43'-46	conjunction	1112 Apr 06 j 15:21	23°V00'42	-16°-19'-38
minimum elong	1104 Mar 29 j 16:16	15°V11'45	16°43'47	minimum elong	1112 Apr 06 j 15:29	23°V00'42	16°19'40
max. Earth dist.	1104 Mar 31 j 09:22	15°V14'09	49.51668 AU	max. Earth dist.	1112 Apr 07 j 23:04	23°V02'31	49.99740 AU
retrograde	1104 Jul 10 j 16:16	16°V43'20		retrograde	1112 Jul 18 j 13:47	24°V31'05	
min. Earth dist.	1104 Sep 30 j 22:54	15°V44'25	47.64241 AU	min. Earth dist.	1112 Oct 09 j 03:10	23°V32'23	48.10124 AU
opposition	1104 Oct 02 j 14:16	15°V42'32	-17°-24'-13	opposition	1112 Oct 10 j 08:27	23°V31'00	-16°-57'-40
direct	1104 Dec 22 j 19:43	14°V43'05		direct	1112 Dec 30 j 13:20	22°V32'08	
conjunction	1105 Mar 30 j 22:14	16°V10'40	-16°-41'-40	conjunction	1113 Apr 07 j 21:10	23°V58'44	-16°-15'-32
minimum elong	1105 Mar 30 j 22:19	16°V10'40	16°41'42	minimum elong	1113 Apr 07 j 21:18	23°V58'44	16°15'32
max. Earth dist.	1105 Apr 01 j 15:01	16°V13'02	49.59049 AU	max. Earth dist.	1113 Apr 09 j 04:38	24°V00'32	50.03599 AU
retrograde	1105 Jul 11 j 23:24	17°V42'04		retrograde	1113 Jul 19 j 15:49	25°V28'58	
min. Earth dist.	1105 Oct 02 j 06:21	16°V43'10	47.71441 AU	min. Earth dist.	1113 Oct 10 j 09:09	24°V30'15	48.13692 AU
opposition	1105 Oct 03 j 19:51	16°V41'23	-17°-21'-50	opposition	1113 Oct 11 j 13:21	24°V28'55	-16°-53'-14
direct	1105 Dec 23 j 23:35	15°V42'01		direct	1113 Dec 31 j 22:14	23°V30'04	
conjunction	1106 Apr 01 j 04:08	17°V09'27	-16°-39'-17	conjunction	1114 Apr 09 j 02:35	24°V56'33	-16°-11'-11
minimum elong	1106 Apr 01 j 04:15	17°V09'28	16°39'19	minimum elong	1114 Apr 09 j 02:43	24°V56'33	16°11'12
max. Earth dist.	1106 Apr 02 j 20:22	17°V11'47	49.66143 AU	max. Earth dist.	1114 Apr 10 j 08:04	24°V58'14	50.07049 AU
retrograde	1106 Jul 13 j 03:00	18°V40'41		retrograde	1114 Jul 20 j 23:14	26°V26'39	
min. Earth dist.	1106 Oct 03 j 11:38	17°V41'53	47.78322 AU	opposition	1114 Oct 12 j 18:11	25°V26'38	-16°-48'-33
opposition	1106 Oct 05 j 01:11	17°V40'06	-17°-19'-9	min. Earth dist.	1114 Oct 11 j 14:23	25°V27'56	48.16884 AU
direct	1106 Dec 25 j 05:58	16°V40'51		direct	1115 Jan 02 j 02:22	24°V27'48	
conjunction	1107 Apr 02 j 09:58	18°V08'10	-16°-36'-38	conjunction	1115 Apr 10 j 08:07	25°V54'09	-16°-6'-35
minimum elong	1107 Apr 02 j 10:04	18°V08'10	16°36'39	minimum elong	1115 Apr 10 j 08:16	25°V54'10	16°06'35
max. Earth dist.	1107 Apr 04 j 00:23	18°V10'23	49.72901 AU	max. Earth dist.	1115 Apr 11 j 13:07	25°V55'49	50.10138 AU
retrograde	1107 Jul 14 j 07:53	19°V39'16		retrograde	1115 Jul 22 j 06:55	27°V24'07	
min. Earth dist.	1107 Oct 04 j 18:34	18°V40'30	47.84853 AU	opposition	1115 Oct 13 j 23:00	26°V24'08	-16°-43'-36
opposition	1107 Oct 06 j 06:36	18°V38'47	-17°-16'-11	min. Earth dist.	1115 Oct 12 j 21:03	26°V25'22	48.19735 AU
direct	1107 Dec 26 j 12:20	17°V39'37		direct	1116 Jan 03 j 05:26	25°V25'20	
conjunction	1108 Apr 02 j 15:58	19°V06'50	-16°-33'-43	conjunction	1116 Apr 10 j 13:37	26°V51'35	-16°-1'-43
				minimum elong	1116 Apr 10 j 13:45	26°V51'35	16°01'44

max. Earth dist.	1116 Apr 11 j 17:53	26°♂53'12	50.12921 AU	conjunction	1124 Apr 18 j 08:58	4°♂28'11	-15°-13'-56
retrograde	1116 Jul 22 j 10:54	28°♂21'24		minimum elong	1124 Apr 18 j 09:08	4°♂28'12	15°13'56
min. Earth dist.	1116 Oct 13 j 01:38	27°♂22'42	48.22272 AU	max. Earth dist.	1124 Apr 19 j 02:30	4°♂29'11	50.21577 AU
opposition	1116 Oct 14 j 03:40	27°♂21'28	-16°-38'-23	retrograde	1124 Jul 30 j 01:59	5°♂57'22	
direct	1117 Jan 03 j 09:56	26°♂22'41		opposition	1124 Oct 21 j 16:05	4°♂57'46	-15°-47'-40
				min. Earth dist.	1124 Oct 20 j 23:48	4°♂58'32	48.28363 AU
conjunction	1117 Apr 11 j 19:00	27°♂48'51	-15°-56'-35	direct	1125 Jan 11 j 02:22	3°♂59'11	
minimum elong	1117 Apr 11 j 19:10	27°♂48'52	15°56'35				
max. Earth dist.	1117 Apr 12 j 21:29	27°♂50'22	50.15387 AU	conjunction	1125 Apr 19 j 14:22	5°♂24'57	-15°-6'-57
retrograde	1117 Jul 23 j 14:40	29°♂18'34		minimum elong	1125 Apr 19 j 14:32	5°♂24'58	15°06'58
min. Earth dist.	1117 Oct 14 j 07:45	28°♂19'50	48.24504 AU	max. Earth dist.	1125 Apr 20 j 07:02	5°♂25'54	50.20497 AU
opposition	1117 Oct 15 j 08:19	28°♂18'41	-16°-32'-54	retrograde	1125 Jul 31 j 09:13	6°♂54'04	
direct	1118 Jan 04 j 15:11	27°♂19'56		opposition	1125 Oct 22 j 20:26	5°♂54'28	-15°-40'-18
				min. Earth dist.	1125 Oct 22 j 06:15	5°♂55'08	48.26960 AU
conjunction	1118 Apr 13 j 00:27	28°♂46'02	-15°-51'-12	direct	1126 Jan 12 j 05:21	4°♂55'52	
minimum elong	1118 Apr 13 j 00:36	28°♂46'02	15°51'13				
max. Earth dist.	1118 Apr 14 j 03:04	28°♂47'33	50.17551 AU	conjunction	1126 Apr 20 j 19:40	6°♂21'36	-14°-59'-44
	1118 Jun 15 j 14:26	0°♂		minimum elong	1126 Apr 20 j 19:51	6°♂21'37	14°59'44
retrograde	1118 Jul 24 j 17:18	0°♂15'39		max. Earth dist.	1126 Apr 21 j 11:26	6°♂22'30	50.19021 AU
	1118 Sep 02 j 09:45	30°♂		retrograde	1126 Aug 01 j 13:41	7°♂50'39	
opposition	1118 Oct 16 j 12:57	29°♂15'49	-16°-27'-9	min. Earth dist.	1126 Oct 23 j 10:27	6°♂51'44	48.25181 AU
min. Earth dist.	1118 Oct 15 j 13:18	29°♂16'55	48.26406 AU	opposition	1126 Oct 24 j 00:40	6°♂51'04	-15°-32'-41
direct	1119 Jan 05 j 22:38	28°♂17'07		direct	1127 Jan 13 j 08:55	5°♂52'27	
conjunction	1119 Apr 14 j 05:39	29°♂43'08	-15°-45'-33	conjunction	1127 Apr 22 j 00:44	7°♂18'11	-14°-52'-17
minimum elong	1119 Apr 14 j 05:49	29°♂43'09	15°45'34	minimum elong	1127 Apr 22 j 00:54	7°♂18'11	14°52'18
max. Earth dist.	1119 Apr 15 j 06:24	29°♂44'33	50.19384 AU	max. Earth dist.	1127 Apr 22 j 14:41	7°♂18'58	50.17187 AU
	1119 Apr 26 j 15:47	0°♂		retrograde	1127 Aug 02 j 17:28	8°♂47'10	
retrograde	1119 Jul 25 j 23:52	1°♂12'41		opposition	1127 Oct 25 j 05:04	7°♂47'36	-15°-24'-49
opposition	1119 Oct 17 j 17:34	0°♂12'54	-16°-21'-8	min. Earth dist.	1127 Oct 24 j 16:29	7°♂48'11	48.23076 AU
min. Earth dist.	1119 Oct 16 j 18:28	0°♂13'59	48.27955 AU	direct	1128 Jan 14 j 13:59	6°♂48'58	
	1119 Oct 29 j 05:59	30°♂					
direct	1120 Jan 07 j 02:44	29°♂14'15		conjunction	1128 Apr 22 j 06:06	8°♂14'42	-14°-44'-35
	1120 Mar 14 j 19:12	0°♂		minimum elong	1128 Apr 22 j 06:18	8°♂14'42	14°44'35
				max. Earth dist.	1128 Apr 22 j 20:12	8°♂15'29	50.15046 AU
conjunction	1120 Apr 14 j 11:09	0°♂40'13	-15°-39'-40	retrograde	1128 Aug 02 j 19:11	9°♂43'39	
minimum elong	1120 Apr 14 j 11:17	0°♂40'14	15°39'41	opposition	1128 Oct 25 j 09:12	8°♂44'05	-15°-16'-42
max. Earth dist.	1120 Apr 15 j 11:01	0°♂41'35	50.20816 AU	min. Earth dist.	1128 Oct 24 j 21:22	8°♂44'39	48.20664 AU
retrograde	1120 Jul 26 j 06:51	2°♂09'42		direct	1129 Jan 14 j 21:38	7°♂45'28	
opposition	1120 Oct 17 j 22:05	1°♂09'59	-16°-14'-53				
min. Earth dist.	1120 Oct 17 j 01:12	1°♂10'58	48.29069 AU	conjunction	1129 Apr 23 j 11:18	9°♂11'11	-14°-36'-38
direct	1121 Jan 07 j 06:16	0°♂11'22		minimum elong	1129 Apr 23 j 11:29	9°♂11'12	14°36'39
				max. Earth dist.	1129 Apr 23 j 23:30	9°♂11'53	50.12623 AU
conjunction	1121 Apr 15 j 16:42	1°♂37'18	-15°-33'-33	retrograde	1129 Aug 04 j 01:11	10°♂40'09	
minimum elong	1121 Apr 15 j 16:53	1°♂37'18	15°33'35	opposition	1129 Oct 26 j 13:28	9°♂40'36	-15°-8'-19
max. Earth dist.	1121 Apr 16 j 15:26	1°♂38'35	50.21798 AU	min. Earth dist.	1129 Oct 26 j 02:03	9°♂41'09	48.17978 AU
retrograde	1121 Jul 27 j 12:51	3°♂06'41		direct	1130 Jan 16 j 01:37	8°♂41'59	
min. Earth dist.	1121 Oct 18 j 06:10	2°♂07'59	48.29689 AU				
opposition	1121 Oct 19 j 02:34	2°♂07'02	-16°-8'-25	conjunction	1130 Apr 24 j 16:25	10°♂07'43	-14°-28'-26
direct	1122 Jan 08 j 09:19	1°♂08'26		minimum elong	1130 Apr 24 j 16:37	10°♂07'44	14°28'27
				max. Earth dist.	1130 Apr 25 j 04:06	10°♂08'23	50.09909 AU
conjunction	1122 Apr 16 j 22:02	2°♂34'20	-15°-27'-14	retrograde	1130 Aug 05 j 07:56	11°♂36'41	
minimum elong	1122 Apr 16 j 22:11	2°♂34'21	15°27'14	opposition	1130 Oct 27 j 17:50	10°♂37'10	-14°-59'-41
max. Earth dist.	1122 Apr 17 j 18:27	2°♂35'30	50.22251 AU	min. Earth dist.	1130 Oct 27 j 08:05	10°♂37'38	48.14990 AU
retrograde	1122 Jul 28 j 17:52	4°♂03'40		direct	1131 Jan 17 j 05:00	9°♂38'34	
opposition	1122 Oct 20 j 07:13	3°♂04'02	-16°-1'-43				
min. Earth dist.	1122 Oct 19 j 12:52	3°♂04'54	48.29775 AU	conjunction	1131 Apr 25 j 21:43	11°♂04'20	-14°-19'-59
direct	1123 Jan 09 j 13:59	2°♂05'27		minimum elong	1131 Apr 25 j 21:53	11°♂04'21	14°20'00
				max. Earth dist.	1131 Apr 26 j 08:40	11°♂04'57	50.06903 AU
conjunction	1123 Apr 18 j 03:36	3°♂31'19	-15°-20'-41	retrograde	1131 Aug 06 j 14:57	12°♂33'18	
minimum elong	1123 Apr 18 j 03:46	3°♂31'19	15°20'43	opposition	1131 Oct 28 j 21:58	11°♂33'49	-14°-50'-47
max. Earth dist.	1123 Apr 18 j 23:29	3°♂32'26	50.22172 AU	min. Earth dist.	1131 Oct 28 j 12:23	11°♂34'16	48.11676 AU
retrograde	1123 Jul 29 j 19:43	5°♂00'34		direct	1132 Jan 18 j 06:42	10°♂35'13	
opposition	1123 Oct 21 j 11:40	4°♂00'57	-15°-54'-48				
min. Earth dist.	1123 Oct 20 j 18:32	4°♂01'46	48.29315 AU	conjunction	1132 Apr 26 j 03:00	12°♂01'03	-14°-11'-17
direct	1124 Jan 10 j 21:52	3°♂02'22		minimum elong	1132 Apr 26 j 03:12	12°♂01'04	14°11'19
				max. Earth dist.	1132 Apr 26 j 11:56	12°♂01'34	50.03529 AU

retrograde	1132 Aug 06 j 20:51	13°830'01		minimum elong	1140 May 03 j 22:56	19°835'48	12°53'54
opposition	1132 Oct 29 j 02:19	12°830'35	-14°-41'-39	max. Earth dist.	1140 May 03 j 21:25	19°835'43	49.59649 AU
min. Earth dist.	1132 Oct 28 j 18:43	12°830'56	48.07968 AU	retrograde	1140 Aug 14 j 09:33	21°804'54	
direct	1133 Jan 18 j 09:46	11°831'59		opposition	1140 Nov 05 j 12:43	20°805'15	-13°-20'-28
				min. Earth dist.	1140 Nov 05 j 14:57	20°805'09	47.61234 AU
conjunction	1133 Apr 27 j 08:30	12°857'52	-14°-2'-23	direct	1141 Jan 26 j 02:57	19°806'17	
minimum elong	1133 Apr 27 j 08:41	12°857'53	14°02'23				
max. Earth dist.	1133 Apr 27 j 17:00	12°858'21	49.99723 AU	conjunction	1141 May 05 j 04:18	20°832'36	-12°-43'-9
retrograde	1133 Aug 07 j 22:25	14°826'52		minimum elong	1141 May 05 j 04:30	20°832'37	12°43'09
opposition	1133 Oct 30 j 06:31	13°827'26	-14°-32'-18	max. Earth dist.	1141 May 05 j 02:19	20°832'29	49.52432 AU
min. Earth dist.	1133 Oct 30 j 00:01	13°827'44	48.03782 AU	retrograde	1141 Aug 15 j 16:15	22°801'46	
direct	1134 Jan 19 j 17:18	12°828'50		opposition	1141 Nov 06 j 16:57	21°802'07	-13°-9'-14
				min. Earth dist.	1141 Nov 06 j 19:08	21°802'01	47.53724 AU
conjunction	1134 Apr 28 j 13:54	13°854'46	-13°-53'-15	direct	1142 Jan 27 j 05:34	20°803'05	
minimum elong	1134 Apr 28 j 14:06	13°854'47	13°53'16				
max. Earth dist.	1134 Apr 28 j 20:01	13°855'07	49.95426 AU	conjunction	1142 May 06 j 09:47	21°829'33	-12°-32'-10
	1134 Jun 21 j 10:27	15°8		minimum elong	1142 May 06 j 09:58	21°829'33	12°32'12
retrograde	1134 Aug 09 j 03:07	15°823'47		max. Earth dist.	1142 May 06 j 05:54	21°829'20	49.44925 AU
	1134 Sep 27 j 12:22	15°8		retrograde	1142 Aug 16 j 22:57	22°858'47	
opposition	1134 Oct 31 j 10:52	14°824'21	-14°-22'-43	opposition	1142 Nov 07 j 21:26	21°859'08	-12°-57'-44
min. Earth dist.	1134 Oct 31 j 05:24	14°824'36	47.99089 AU	min. Earth dist.	1142 Nov 08 j 01:18	21°858'57	47.45929 AU
direct	1135 Jan 20 j 23:02	13°825'43		direct	1143 Jan 28 j 08:12	21°800'04	
conjunction	1135 Apr 29 j 19:19	14°851'42	-13°-43'-54	conjunction	1143 May 07 j 15:26	22°826'40	-12°-20'-57
minimum elong	1135 Apr 29 j 19:31	14°851'42	13°43'54	minimum elong	1143 May 07 j 15:39	22°826'41	12°20'58
max. Earth dist.	1135 Apr 30 j 00:16	14°851'58	49.90595 AU	max. Earth dist.	1143 May 07 j 11:34	22°826'27	49.37120 AU
	1135 May 05 j 22:19	15°8		retrograde	1143 Aug 18 j 02:03	23°856'01	
retrograde	1135 Aug 10 j 10:10	16°820'43		opposition	1143 Nov 09 j 01:53	22°856'21	-12°-45'-58
opposition	1135 Nov 01 j 15:18	15°821'16	-14°-12'-56	min. Earth dist.	1143 Nov 09 j 06:27	22°856'08	47.37795 AU
min. Earth dist.	1135 Nov 01 j 12:03	15°821'25	47.93857 AU	direct	1144 Jan 29 j 14:52	21°857'16	
	1135 Nov 20 j 21:02	15°8					
direct	1136 Jan 22 j 02:56	14°822'35		conjunction	1144 May 07 j 21:11	23°824'01	-12°-9'-29
	1136 Mar 23 j 00:23	15°8		minimum elong	1144 May 07 j 21:22	23°824'01	12°09'30
				max. Earth dist.	1144 May 07 j 15:11	23°823'40	49.28958 AU
conjunction	1136 Apr 30 j 00:54	15°848'36	-13°-34'-21	retrograde	1144 Aug 18 j 07:02	24°853'29	
minimum elong	1136 Apr 30 j 01:05	15°848'37	13°34'22	opposition	1144 Nov 09 j 06:16	23°853'49	-12°-33'-59
max. Earth dist.	1136 Apr 30 j 04:33	15°848'49	49.85255 AU	min. Earth dist.	1144 Nov 09 j 11:56	23°853'33	47.29280 AU
retrograde	1136 Aug 10 j 16:13	17°817'37		direct	1145 Jan 29 j 20:16	22°854'42	
opposition	1136 Nov 01 j 19:26	16°818'09	-14°-2'-55				
min. Earth dist.	1136 Nov 01 j 16:33	16°818'17	47.88123 AU	conjunction	1145 May 09 j 03:09	24°821'37	-11°-57'-48
direct	1137 Jan 22 j 05:42	15°819'24		minimum elong	1145 May 09 j 03:21	24°821'38	11°57'49
				max. Earth dist.	1145 May 08 j 20:04	24°821'13	49.20357 AU
conjunction	1137 May 01 j 06:22	16°845'28	-13°-24'-35	retrograde	1145 Aug 19 j 14:10	25°851'14	
minimum elong	1137 May 01 j 06:34	16°845'28	13°24'35	opposition	1145 Nov 10 j 10:57	24°851'33	-12°-21'-45
max. Earth dist.	1137 May 01 j 07:49	16°845'33	49.79429 AU	min. Earth dist.	1145 Nov 10 j 18:45	24°851'11	47.20289 AU
retrograde	1137 Aug 11 j 21:18	18°814'29		direct	1146 Jan 31 j 00:18	23°852'24	
opposition	1137 Nov 02 j 23:49	17°814'57	-13°-52'-40				
min. Earth dist.	1137 Nov 02 j 22:55	17°815'00	47.81944 AU	conjunction	1146 May 10 j 09:01	25°819'28	-11°-45'-53
direct	1138 Jan 23 j 10:00	16°816'09		minimum elong	1146 May 10 j 09:12	25°819'29	11°45'54
				max. Earth dist.	1146 May 10 j 00:37	25°818'59	49.11268 AU
conjunction	1138 May 02 j 11:46	17°842'16	-13°-14'-35	retrograde	1146 Aug 20 j 22:09	26°849'12	
minimum elong	1138 May 02 j 11:57	17°842'16	13°14'36	opposition	1146 Nov 11 j 15:36	25°849'30	-12°-9'-17
max. Earth dist.	1138 May 02 j 13:10	17°842'21	49.73184 AU	min. Earth dist.	1146 Nov 11 j 23:47	25°849'07	47.10778 AU
retrograde	1138 Aug 12 j 22:47	19°811'17		direct	1147 Feb 01 j 02:18	24°850'17	
opposition	1138 Nov 04 j 04:06	18°811'43	-13°-42'-11				
min. Earth dist.	1138 Nov 04 j 04:00	18°811'44	47.75365 AU	conjunction	1147 May 11 j 15:03	26°817'31	-11°-33'-46
direct	1139 Jan 24 j 17:30	17°812'51		minimum elong	1147 May 11 j 15:15	26°817'32	11°33'47
				max. Earth dist.	1147 May 11 j 04:12	26°816'54	49.01635 AU
conjunction	1139 May 03 j 17:11	18°839'01	-13°-4'-21	retrograde	1147 Aug 22 j 04:28	27°847'22	
minimum elong	1139 May 03 j 17:23	18°839'02	13°04'21	opposition	1147 Nov 12 j 20:21	26°847'37	-11°-56'-36
max. Earth dist.	1139 May 03 j 16:34	18°838'59	49.66581 AU	min. Earth dist.	1147 Nov 13 j 06:52	26°847'07	47.00731 AU
retrograde	1139 Aug 14 j 03:50	20°808'05		direct	1148 Feb 02 j 06:38	25°848'20	
opposition	1139 Nov 05 j 08:19	19°808'28	-13°-31'-27				
min. Earth dist.	1139 Nov 05 j 08:50	19°808'27	47.68457 AU	conjunction	1148 May 11 j 21:18	27°815'44	-11°-21'-25
direct	1140 Jan 25 j 22:13	18°809'33		minimum elong	1148 May 11 j 21:30	27°815'45	11°21'26
				max. Earth dist.	1148 May 11 j 09:53	27°815'05	48.91474 AU
conjunction	1140 May 03 j 22:45	19°835'47	-12°-53'-52	retrograde	1148 Aug 22 j 06:52	28°845'41	

opposition	1148 Nov 13 j 01:05	27° 8 45'52	-11°-43'-41	max. Earth dist.	1156 May 19 j 03:00	5° II 04'34	47.96411 AU
min. Earth dist.	1148 Nov 13 j 12:35	27° 8 45'19	46.90155 AU	retrograde	1156 Aug 30 j 07:40	6° II 37'00	
direct	1149 Feb 02 j 14:39	26° 8 46'29		opposition	1156 Nov 20 j 16:46	5° II 36'34	-9°-51'-15
				min. Earth dist.	1156 Nov 21 j 12:05	5° II 35'38	45.92546 AU
conjunction	1149 May 13 j 03:20	28° 8 14'03	-11°-8'-51	direct	1157 Feb 10 j 07:18	4° II 36'18	
minimum elong	1149 May 13 j 03:32	28° 8 14'03	11°08'52	max. Earth dist.	1157 May 20 j 07:38	6° II 04'13	47.83060 AU
max. Earth dist.	1149 May 12 j 13:31	28° 8 13'15	48.80817 AU				
retrograde	1149 Aug 23 j 11:43	29° 8 44'07		conjunction	1157 May 21 j 06:46	6° II 05'33	-9°-19'-26
opposition	1149 Nov 14 j 05:47	28° 8 44'13	-11°-30'-32	minimum elong	1157 May 21 j 06:57	6° II 05'34	9°19'27
min. Earth dist.	1149 Nov 14 j 18:20	28° 8 43'37	46.79123 AU	retrograde	1157 Aug 31 j 15:57	7° II 37'00	
direct	1150 Feb 03 j 20:41	27° 8 44'43		opposition	1157 Nov 21 j 22:13	6° II 36'29	-9°-36'-1
				min. Earth dist.	1157 Nov 22 j 19:48	6° II 35'26	45.78836 AU
conjunction	1150 May 14 j 09:31	29° 8 12'26	-10°-56'-3	direct	1158 Feb 11 j 10:52	5° II 36'07	
minimum elong	1150 May 14 j 09:43	29° 8 12'27	10°56'03				
max. Earth dist.	1150 May 13 j 18:49	29° 8 11'36	48.69716 AU	conjunction	1158 May 22 j 13:53	7° II 05'38	-9°-4'-39
	1150 Jun 19 j 18:21	0° II		minimum elong	1158 May 22 j 14:04	7° II 05'39	9°04'40
retrograde	1150 Aug 24 j 17:02	0° II 42'39		max. Earth dist.	1158 May 21 j 14:16	7° II 04'16	47.69261 AU
	1150 Oct 31 j 02:36	30° R 8		retrograde	1158 Sep 01 j 21:31	8° II 37'18	
opposition	1150 Nov 15 j 10:37	29° 8 42'40	-11°-17'-9	opposition	1158 Nov 23 j 03:43	7° II 36'42	-9°-20'-32
min. Earth dist.	1150 Nov 16 j 00:58	29° 8 41'59	46.67679 AU	min. Earth dist.	1158 Nov 24 j 02:06	7° II 35'37	45.64643 AU
direct	1151 Feb 05 j 02:36	28° 8 43'03		direct	1159 Feb 12 j 18:01	6° II 36'12	
	1151 May 07 j 16:29	0° II					
conjunction	1151 May 15 j 15:39	0° II 10'56	-10°-43'00	conjunction	1159 May 23 j 20:57	8° II 06'01	-8°-49'-37
minimum elong	1151 May 15 j 15:51	0° II 10'56	10°43'01	minimum elong	1159 May 23 j 21:07	8° II 06'02	8°49'37
max. Earth dist.	1151 May 15 j 00:07	0° II 10'02	48.58251 AU	max. Earth dist.	1159 May 22 j 18:43	8° II 04'29	47.54971 AU
retrograde	1151 Aug 26 j 00:37	1° II 41'16		retrograde	1159 Sep 03 j 03:55	9° II 37'54	
opposition	1151 Nov 16 j 15:24	0° II 41'12	-11°-3'-30	opposition	1159 Nov 24 j 09:22	8° II 37'12	-9°-4'-48
min. Earth dist.	1151 Nov 17 j 05:53	0° II 40'30	46.55887 AU	min. Earth dist.	1159 Nov 25 j 09:06	8° II 36'03	45.49957 AU
	1151 Dec 26 j 03:42	30° R 8		direct	1160 Feb 14 j 00:38	7° II 36'34	
direct	1152 Feb 06 j 05:56	29° 8 41'28		max. Earth dist.	1160 May 23 j 01:02	9° II 05'04	47.40170 AU
	1152 Mar 18 j 22:38	0° II					
conjunction	1152 May 15 j 21:56	1° II 09'32	-10°-29'-43	conjunction	1160 May 24 j 04:21	9° II 06'40	-8°-34'-20
minimum elong	1152 May 15 j 22:08	1° II 09'33	10°29'43	minimum elong	1160 May 24 j 04:32	9° II 06'40	8°34'22
max. Earth dist.	1152 May 15 j 04:24	1° II 08'32	48.46444 AU	retrograde	1160 Sep 03 j 09:17	10° II 38'47	
retrograde	1152 Aug 26 j 09:22	2° II 40'00		opposition	1160 Nov 24 j 15:05	9° II 37'58	-8°-48'-49
opposition	1152 Nov 16 j 20:17	1° II 39'51	-10°-49'-35	min. Earth dist.	1160 Nov 25 j 16:46	9° II 36'43	45.34775 AU
min. Earth dist.	1152 Nov 17 j 12:33	1° II 39'04	46.43790 AU	direct	1161 Feb 14 j 07:52	8° II 37'11	
direct	1153 Feb 06 j 08:03	0° II 40'00		max. Earth dist.	1161 May 24 j 07:10	10° II 05'53	47.24917 AU
max. Earth dist.	1153 May 16 j 10:53	2° II 07'16	48.34354 AU				
conjunction	1153 May 17 j 04:23	2° II 08'17	-10°-16'-10	conjunction	1161 May 25 j 11:45	10° II 07'33	-8°-18'-49
minimum elong	1153 May 17 j 04:34	2° II 08'17	10°16'11	minimum elong	1161 May 25 j 11:55	10° II 07'34	8°18'50
retrograde	1153 Aug 27 j 13:38	3° II 38'54		retrograde	1161 Sep 04 j 17:10	11° II 39'55	
opposition	1153 Nov 18 j 01:18	2° II 38'40	-10°-35'-24	opposition	1161 Nov 25 j 20:51	10° II 38'59	-8°-32'-34
min. Earth dist.	1153 Nov 18 j 17:55	2° II 37'52	46.31411 AU	min. Earth dist.	1161 Nov 26 j 22:52	10° II 37'43	45.19165 AU
direct	1154 Feb 07 j 14:46	1° II 38'42		direct	1162 Feb 15 j 12:51	9° II 38'02	
conjunction	1154 May 18 j 10:36	3° II 07'12	-10°-2'-22				
minimum elong	1154 May 18 j 10:47	3° II 07'12	10°02'23	conjunction	1162 May 26 j 19:00	11° II 08'42	-8°-3'-4
max. Earth dist.	1154 May 17 j 15:18	3° II 06'05	48.21999 AU	minimum elong	1162 May 26 j 19:10	11° II 08'43	8°03'05
retrograde	1154 Aug 28 j 17:57	4° II 37'59		max. Earth dist.	1162 May 25 j 12:22	11° II 06'54	47.09244 AU
opposition	1154 Nov 19 j 06:25	3° II 37'41	-10°-20'-57	retrograde	1162 Sep 06 j 03:06	12° II 41'20	
min. Earth dist.	1154 Nov 19 j 23:49	3° II 36'51	46.18773 AU	opposition	1162 Nov 27 j 02:52	11° II 40'15	-8°-16'-4
direct	1155 Feb 08 j 21:14	2° II 37'37		min. Earth dist.	1162 Nov 28 j 06:52	11° II 38'53	45.03176 AU
				direct	1163 Feb 16 j 16:15	10° II 39'08	
conjunction	1155 May 19 j 17:13	4° II 06'21	-9°-48'-19	max. Earth dist.	1163 May 26 j 19:59	12° II 08'19	46.93222 AU
minimum elong	1155 May 19 j 17:24	4° II 06'21	9°48'20				
max. Earth dist.	1155 May 18 j 21:13	4° II 05'11	48.09360 AU	conjunction	1163 May 28 j 02:40	12° II 10'08	-7°-47'-3
retrograde	1155 Aug 29 j 23:12	5° II 37'21		minimum elong	1163 May 28 j 02:50	12° II 10'09	7°47'03
opposition	1155 Nov 20 j 11:34	4° II 36'58	-10°-6'-14	retrograde	1163 Sep 07 j 09:47	13° II 43'01	
min. Earth dist.	1155 Nov 21 j 06:39	4° II 36'03	46.05833 AU	opposition	1163 Nov 28 j 08:46	12° II 41'48	-7°-59'-17
direct	1156 Feb 10 j 03:54	3° II 36'49		min. Earth dist.	1163 Nov 29 j 13:08	12° II 40'25	44.86860 AU
				direct	1164 Feb 17 j 23:12	11° II 40'31	
conjunction	1156 May 19 j 23:59	5° II 05'47	-9°-34'00	max. Earth dist.	1164 May 27 j 01:35	13° II 09'55	46.76900 AU
minimum elong	1156 May 20 j 00:11	5° II 05'48	9°34'01				
				conjunction	1164 May 28 j 10:19	13° II 11'51	-7°-30'-46
				minimum elong	1164 May 28 j 10:29	13° II 11'52	7°30'47
				retrograde	1164 Sep 07 j 16:26	14° II 45'01	
				opposition	1164 Nov 28 j 14:56	13° II 43'41	-7°-42'-13

min. Earth dist.	1164 Nov 29 j 20:22	13°II42'14	44.70278 AU	conjunction	1173 Jun 07 j 15:54	22°II47'36	-4°-52'-17
direct	1165 Feb 18 j 05:57	12°II42'14		minimum elong	1173 Jun 07 j 16:01	22°II47'37	4°52'18
max. Earth dist.	1165 May 28 j 08:54	14°II11'57	46.60311 AU	retrograde	1173 Sep 17 j 21:55	24°II24'03	
				opposition	1173 Dec 08 j 05:53	23°II21'28	-4°-55'-57
conjunction	1165 May 29 j 18:07	14°II13'55	-7°-14'-13	min. Earth dist.	1173 Dec 09 j 21:13	23°II19'28	43.07150 AU
minimum elong	1165 May 29 j 18:17	14°II13'56	7°14'14	direct	1174 Feb 27 j 19:02	22°II18'23	
retrograde	1165 Sep 08 j 21:10	15°II47'23		max. Earth dist.	1174 Jun 07 j 03:47	23°II51'07	44.96589 AU
opposition	1165 Nov 29 j 21:16	14°II45'56	-7°-24'-52				
min. Earth dist.	1165 Dec 01 j 03:54	14°II44'25	44.53444 AU	conjunction	1174 Jun 09 j 01:27	23°II53'56	-4°-33'-22
direct	1166 Feb 19 j 14:51	13°II44'20		minimum elong	1174 Jun 09 j 01:34	23°II53'56	4°33'22
max. Earth dist.	1166 May 29 j 15:57	15°II14'21	46.43506 AU	retrograde	1174 Sep 19 j 08:13	25°II30'46	
				opposition	1174 Dec 09 j 13:45	24°II27'58	-4°-36'-5
conjunction	1166 May 31 j 02:02	15°II16'23	-6°-57'-24	min. Earth dist.	1174 Dec 11 j 06:42	24°II25'53	42.87042 AU
minimum elong	1166 May 31 j 02:11	15°II16'23	6°57'26	direct	1175 Mar 01 j 02:25	23°II24'39	
retrograde	1166 Sep 10 j 06:08	16°II50'11		max. Earth dist.	1175 Jun 08 j 13:12	24°II57'49	44.76402 AU
opposition	1166 Dec 01 j 03:38	15°II48'36	-7°-7'-14				
min. Earth dist.	1166 Dec 02 j 10:12	15°II47'05	44.36397 AU	conjunction	1175 Jun 10 j 11:22	25°II00'40	-4°-14'-11
direct	1167 Feb 20 j 19:43	14°II46'51		minimum elong	1175 Jun 10 j 11:28	25°II00'40	4°14'12
max. Earth dist.	1167 May 30 j 22:24	16°II17'10	46.26459 AU	retrograde	1175 Sep 20 j 15:06	26°II37'54	
				opposition	1175 Dec 10 j 21:54	25°II34'54	-4°-15'-55
conjunction	1167 Jun 01 j 10:07	16°II19'18	-6°-40'-19	min. Earth dist.	1175 Dec 12 j 15:58	25°II32'46	42.66612 AU
minimum elong	1167 Jun 01 j 10:17	16°II19'18	6°40'20	direct	1176 Mar 01 j 13:46	24°II31'20	
retrograde	1167 Sep 11 j 16:22	17°II53'27		max. Earth dist.	1176 Jun 08 j 21:54	26°II04'54	44.55931 AU
opposition	1167 Dec 02 j 10:19	16°II51'46	-6°-49'-19				
min. Earth dist.	1167 Dec 03 j 18:50	16°II50'09	44.19099 AU	conjunction	1176 Jun 10 j 21:23	26°II07'51	-3°-54'-44
direct	1168 Feb 21 j 23:17	15°II49'52		minimum elong	1176 Jun 10 j 21:29	26°II07'52	3°54'44
max. Earth dist.	1168 May 31 j 06:43	17°II20'35	46.09141 AU	retrograde	1176 Sep 21 j 00:02	27°II45'32	
				opposition	1176 Dec 11 j 06:05	26°II42'19	-3°-55'-28
conjunction	1168 Jun 01 j 18:36	17°II22'44	-6°-22'-58	min. Earth dist.	1176 Dec 13 j 00:24	26°II40'09	42.45935 AU
minimum elong	1168 Jun 01 j 18:45	17°II22'44	6°22'58	direct	1177 Mar 02 j 22:45	25°II38'30	
retrograde	1168 Sep 12 j 01:11	18°II57'15		max. Earth dist.	1177 Jun 10 j 06:49	27°II12'30	44.35212 AU
opposition	1168 Dec 02 j 16:58	17°II55'27	-6°-31'-7				
min. Earth dist.	1168 Dec 04 j 01:54	17°II53'49	44.01494 AU	conjunction	1177 Jun 12 j 07:39	27°II15'32	-3°-35'00
direct	1169 Feb 22 j 06:33	16°II53'24		minimum elong	1177 Jun 12 j 07:45	27°II15'32	3°35'01
max. Earth dist.	1169 Jun 01 j 12:55	18°II24'24	45.91483 AU	retrograde	1177 Sep 22 j 10:16	28°II53'41	
				opposition	1177 Dec 12 j 14:46	27°II50'17	-3°-34'-43
conjunction	1169 Jun 03 j 03:10	18°II26'42	-6°-5'-21	min. Earth dist.	1177 Dec 14 j 10:50	27°II48'01	42.25043 AU
minimum elong	1169 Jun 03 j 03:19	18°II26'43	6°05'21	direct	1178 Mar 04 j 05:49	26°II46'12	
retrograde	1169 Sep 13 j 10:24	20°II01'36		max. Earth dist.	1178 Jun 11 j 17:11	28°II20'44	44.14303 AU
opposition	1169 Dec 03 j 23:59	18°II59'41	-6°-12'-38				
min. Earth dist.	1169 Dec 05 j 10:22	18°II57'58	43.83527 AU	conjunction	1178 Jun 13 j 18:03	28°II23'47	-3°-15'00
direct	1170 Feb 23 j 13:50	17°II57'28		minimum elong	1178 Jun 13 j 18:08	28°II23'48	3°15'00
max. Earth dist.	1170 Jun 02 j 20:58	19°II28'52	45.73408 AU	retrograde	1178 Sep 09 j 12:31	0°☾	
					1178 Sep 23 j 21:27	0°☾02'27	
conjunction	1170 Jun 04 j 11:58	19°II31'13	-5°-47'-28		1178 Oct 08 j 08:05	30°☾II	
minimum elong	1170 Jun 04 j 12:06	19°II31'14	5°47'28	opposition	1178 Dec 13 j 23:34	28°II58'50	-3°-13'-41
retrograde	1170 Sep 14 j 17:05	21°II06'30		min. Earth dist.	1178 Dec 15 j 19:28	28°II56'34	42.03961 AU
opposition	1170 Dec 05 j 07:16	20°II04'26	-5°-53'-52	direct	1179 Mar 05 j 14:04	27°II54'32	
min. Earth dist.	1170 Dec 06 j 19:20	20°II02'38	43.65113 AU	max. Earth dist.	1179 Jun 13 j 01:49	29°II29'30	43.93194 AU
direct	1171 Feb 24 j 22:55	19°II02'02					
max. Earth dist.	1171 Jun 04 j 04:26	20°II33'45	45.54884 AU	conjunction	1179 Jun 15 j 04:48	29°II32'42	-2°-54'-43
				minimum elong	1179 Jun 15 j 04:52	29°II32'43	2°54'45
conjunction	1171 Jun 05 j 21:06	20°II36'14	-5°-29'-20		1179 Jul 03 j 11:47	0°☾	
minimum elong	1171 Jun 05 j 21:14	20°II36'14	5°29'21	retrograde	1179 Sep 25 j 10:58	1°☾11'53	
retrograde	1171 Sep 16 j 00:50	22°II11'53		opposition	1179 Dec 15 j 08:34	0°☾08'06	-2°-52'-20
opposition	1171 Dec 06 j 14:31	21°II09'41	-5°-34'-51	min. Earth dist.	1179 Dec 17 j 05:59	0°☾05'45	41.82685 AU
min. Earth dist.	1171 Dec 08 j 03:14	21°II07'50	43.46241 AU		1179 Dec 21 j 21:07	30°☾II	
direct	1172 Feb 26 j 06:49	20°II07'04		direct	1180 Mar 05 j 21:12	29°II03'33	
max. Earth dist.	1172 Jun 04 j 11:32	21°II39'05	45.35878 AU	max. Earth dist.	1180 May 17 j 19:50	0°☾	
					1180 Jun 13 j 12:56	0°☾39'08	43.71858 AU
conjunction	1172 Jun 06 j 06:27	21°II41'42	-5°-10'-56				
minimum elong	1172 Jun 06 j 06:34	21°II41'43	5°10'57	conjunction	1180 Jun 15 j 16:01	0°☾42'22	-2°-34'-10
retrograde	1172 Sep 16 j 11:34	23°II17'45		minimum elong	1180 Jun 15 j 16:05	0°☾42'22	2°34'11
opposition	1172 Dec 06 j 22:12	22°II15'22	-5°-15'-32	retrograde	1180 Sep 25 j 21:30	2°☾22'06	
min. Earth dist.	1172 Dec 08 j 13:10	22°II13'24	43.26906 AU	opposition	1180 Dec 15 j 17:56	1°☾18'08	-2°-30'-42
direct	1173 Feb 26 j 12:19	21°II12'32		min. Earth dist.	1180 Dec 17 j 16:18	1°☾15'43	41.61155 AU
max. Earth dist.	1173 Jun 05 j 20:36	22°II44'58	45.16432 AU	direct	1181 Mar 07 j 07:44	0°☾13'22	

max. Earth dist.	1181 Jun 14 j 22:30	1°☾49'28	43.50245 AU	max. Earth dist.	1189 Jun 24 j 18:40	11°☾40'28	41.64621 AU
conjunction	1181 Jun 17 j 03:15	1°☾52'49	-2°-13'-21	conjunction	1189 Jun 27 j 09:53	11°☾44'41	0°42'38
minimum elong	1181 Jun 17 j 03:18	1°☾52'49	2°13'22	minimum elong	1189 Jun 27 j 09:52	11°☾44'41	0°42'39
retrograde	1181 Sep 27 j 07:58	3°☾33'08		retrograde	1189 Oct 07 j 14:25	13°☾30'02	
opposition	1181 Dec 17 j 03:31	2°☾28'59	-2°-8'-47	opposition	1189 Dec 26 j 19:19	12°☾23'49	0°56'51
min. Earth dist.	1181 Dec 19 j 02:38	2°☾26'31	41.39327 AU	min. Earth dist.	1189 Dec 29 j 03:35	12°☾20'45	39.52428 AU
direct	1182 Mar 08 j 17:48	1°☾23'59		direct	1190 Mar 18 j 05:44	11°☾16'18	
max. Earth dist.	1182 Jun 16 j 08:40	3°☾00'37	43.28274 AU	max. Earth dist.	1190 Jun 26 j 09:23	12°☾57'59	41.40389 AU
conjunction	1182 Jun 18 j 15:01	3°☾04'06	-1°-52'-16	conjunction	1190 Jun 29 j 00:14	13°☾02'12	1°05'46
minimum elong	1182 Jun 18 j 15:04	3°☾04'06	1°52'17	minimum elong	1190 Jun 29 j 00:12	13°☾02'12	1°05'45
retrograde	1182 Sep 28 j 18:32	4°☾45'00		retrograde	1190 Oct 09 j 05:06	14°☾48'16	
opposition	1182 Dec 18 j 13:28	3°☾40'39	-1°-46'-34	opposition	1190 Dec 28 j 07:41	13°☾41'45	1°21'18
min. Earth dist.	1182 Dec 20 j 14:39	3°☾38'04	41.17125 AU	min. Earth dist.	1190 Dec 30 j 15:51	13°☾38'42	39.28182 AU
direct	1183 Mar 10 j 03:13	2°☾35'24		direct	1191 Mar 19 j 17:16	12°☾33'55	
max. Earth dist.	1183 Jun 17 j 20:00	4°☾12'39	43.05920 AU	max. Earth dist.	1191 Jun 27 j 22:17	14°☾16'16	41.16082 AU
conjunction	1183 Jun 20 j 03:08	4°☾16'11	-1°-30'-55	conjunction	1191 Jun 30 j 14:52	14°☾20'38	1°29'09
minimum elong	1183 Jun 20 j 03:10	4°☾16'12	1°30'56	minimum elong	1191 Jun 30 j 14:49	14°☾20'38	1°29'10
retrograde	1183 Sep 30 j 07:33	5°☾57'42		retrograde	1191 Oct 10 j 21:59	16°☾07'28	
opposition	1183 Dec 19 j 23:40	4°☾53'08	-1°-24'-5	opposition	1191 Dec 29 j 20:32	15°☾00'41	1°46'01
min. Earth dist.	1183 Dec 22 j 01:10	4°☾50'31	40.94521 AU	min. Earth dist.	1192 Jan 01 j 05:40	14°☾57'33	39.03873 AU
direct	1184 Mar 10 j 11:21	3°☾47'36		direct	1192 Mar 20 j 05:13	13°☾52'30	
max. Earth dist.	1184 Jun 18 j 05:50	5°☾25'20	42.83145 AU	max. Earth dist.	1192 Jun 28 j 13:13	15°☾35'42	40.91674 AU
conjunction	1184 Jun 20 j 15:31	5°☾29'04	-1°-9'-18	conjunction	1192 Jul 01 j 06:05	15°☾40'07	1°52'46
minimum elong	1184 Jun 20 j 15:33	5°☾29'04	1°09'19	minimum elong	1192 Jul 01 j 06:01	15°☾40'06	1°52'45
retrograde	1184 Sep 30 j 21:38	7°☾11'11		retrograde	1192 Oct 11 j 12:19	17°☾27'43	
opposition	1184 Dec 20 j 10:11	6°☾06'22	-1°-1'-17	opposition	1192 Dec 30 j 09:48	16°☾20'40	2°11'00
min. Earth dist.	1184 Dec 22 j 13:49	6°☾03'38	40.71526 AU	min. Earth dist.	1193 Jan 01 j 20:01	16°☾17'27	38.79451 AU
direct	1185 Mar 11 j 19:48	5°☾00'32		direct	1193 Mar 21 j 20:33	15°☾12'09	
max. Earth dist.	1185 Jun 19 j 18:15	6°☾38'56	42.59989 AU	max. Earth dist.	1193 Jun 30 j 03:47	16°☾56'09	40.67141 AU
conjunction	1185 Jun 22 j 04:18	6°☾42'42	0°-47'-26	conjunction	1193 Jul 02 j 21:36	17°☾00'40	2°16'36
minimum elong	1185 Jun 22 j 04:19	6°☾42'42	0°47'27	minimum elong	1193 Jul 02 j 21:32	17°☾00'40	2°16'37
retrograde	1185 Oct 02 j 10:27	8°☾25'25		retrograde	1193 Oct 13 j 04:25	18°☾49'06	
opposition	1185 Dec 21 j 21:01	7°☾20'21	0°-38'-13	opposition	1193 Dec 31 j 23:26	17°☾41'46	2°36'13
min. Earth dist.	1185 Dec 24 j 01:21	7°☾17'34	40.48173 AU	min. Earth dist.	1194 Jan 03 j 09:47	17°☾38'32	38.54887 AU
direct	1186 Mar 13 j 08:27	6°☾14'12		direct	1194 Mar 23 j 10:27	16°☾32'55	
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conjunction	1186 Jun 23 j 17:05	7°☾57'04	0°-25'-18	conjunction	1194 Jul 04 j 13:36	18°☾22'22	2°40'39
minimum elong	1186 Jun 23 j 17:06	7°☾57'04	0°25'20	minimum elong	1194 Jul 04 j 13:31	18°☾22'22	2°40'39
retrograde	1186 Oct 04 j 00:14	9°☾40'25		retrograde	1194 Oct 14 j 19:29	20°☾11'39	
opposition	1186 Dec 23 j 08:05	8°☾35'03	0°-14'-52	opposition	1195 Jan 02 j 13:42	19°☾04'01	3°01'41
min. Earth dist.	1186 Dec 25 j 13:19	8°☾32'13	40.24533 AU	min. Earth dist.	1195 Jan 05 j 02:05	19°☾00'39	38.30103 AU
direct	1187 Mar 14 j 20:45	7°☾28'35		direct	1195 Mar 24 j 22:56	17°☾54'50	
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conjunction	1187 Jun 25 j 06:30	9°☾12'11	0°-2'-58	conjunction	1195 Jul 06 j 06:17	19°☾45'13	3°04'55
minimum elong	1187 Jun 25 j 06:29	9°☾12'11	0°02'59	minimum elong	1195 Jul 06 j 06:11	19°☾45'13	3°04'56
behind sun begin	1187 Jun 24 j 23:59	9°☾11'47		retrograde	1195 Oct 16 j 12:00	21°☾35'22	
behind sun end	1187 Jun 25 j 13:00	9°☾12'35		opposition	1196 Jan 04 j 04:13	20°☾27'26	3°27'23
asc. node	1187 Aug 11 j 16:30	10°☾21'04		min. Earth dist.	1196 Jan 06 j 16:49	20°☾24'01	38.05068 AU
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min. Earth dist.	1187 Dec 27 j 02:18	9°☾47'34	40.00647 AU	conjunction	1196 Jul 06 j 23:20	21°☾09'13	3°29'24
direct	1188 Mar 15 j 09:15	8°☾43'42		minimum elong	1196 Jul 06 j 23:13	21°☾09'13	3°29'23
max. Earth dist.	1188 Jun 23 j 06:38	10°☾23'57	41.88759 AU	retrograde	1196 Oct 17 j 07:45	23°☾00'15	
conjunction	1188 Jun 25 j 20:07	10°☾28'02	0°19'45	opposition	1197 Jan 04 j 19:23	21°☾51'58	3°53'19
minimum elong	1188 Jun 25 j 20:07	10°☾28'02	0°19'45	min. Earth dist.	1197 Jan 07 j 09:38	21°☾48'28	37.79793 AU
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opposition	1188 Dec 25 j 07:08	11°☾06'45	0°32'40	max. Earth dist.	1197 Jul 05 j 18:33	22°☾29'24	39.66683 AU
min. Earth dist.	1188 Dec 27 j 13:52	11°☾03'48	39.76595 AU	conjunction	1197 Jul 08 j 16:47	22°☾34'22	3°54'04
direct	1189 Mar 16 j 20:58	9°☾59'36					

























































































































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opposition	1198 Jan 06 j 10:59	23° $\overline{51}$ 7'40	4°19'28	retrograde	1205 Oct 31 j 20:29	6° $\overline{04}$ 1'18	
min. Earth dist.	1198 Jan 09 j 01:55	23° $\overline{51}$ 4'06	37.54294 AU	opposition	1206 Jan 18 j 10:01	5° $\overline{02}$ 9'50	7°54'10
direct	1198 Mar 28 j 17:22	22° $\overline{50}$ 7'18		min. Earth dist.	1206 Jan 21 j 04:41	5° $\overline{02}$ 5'51	35.49338 AU
max. Earth dist.	1198 Jul 07 j 10:55	23° $\overline{50}$ 5'33	39.40998 AU	direct	1206 Apr 09 j 12:40	4° $\overline{02}$ 16'07	
				max. Earth dist.	1206 Jul 20 j 01:04	6° $\overline{02}$ 12'59	37.34820 AU
conjunction	1198 Jul 10 j 10:39	24° $\overline{50}$ 0'40	4°18'55				
minimum elong	1198 Jul 10 j 10:31	24° $\overline{50}$ 0'40	4°18'54	conjunction	1206 Jul 23 j 05:19	6° $\overline{02}$ 18'49	7°41'54
retrograde	1198 Oct 20 j 19:50	25° $\overline{50}$ 5'30		minimum elong	1206 Jul 23 j 05:04	6° $\overline{02}$ 18'48	7°41'54
opposition	1199 Jan 08 j 02:51	24° $\overline{50}$ 4'32	4°45'49	retrograde	1206 Nov 02 j 19:14	8° $\overline{02}$ 0'07	
min. Earth dist.	1199 Jan 10 j 18:23	24° $\overline{50}$ 4'54	37.28646 AU	opposition	1207 Jan 20 j 06:38	7° $\overline{02}$ 08'18	8°21'21
direct	1199 Mar 30 j 10:14	23° $\overline{50}$ 3'44		min. Earth dist.	1207 Jan 23 j 02:59	7° $\overline{02}$ 04'12	35.23962 AU
max. Earth dist.	1199 Jul 09 j 04:30	25° $\overline{50}$ 22'56	39.15158 AU	direct	1207 Apr 11 j 07:50	5° $\overline{02}$ 54'10	
				max. Earth dist.	1207 Jul 22 j 00:18	7° $\overline{02}$ 52'16	37.09216 AU
conjunction	1199 Jul 12 j 05:12	25° $\overline{50}$ 28'10	4°43'55				
minimum elong	1199 Jul 12 j 05:02	25° $\overline{50}$ 28'09	4°43'56	conjunction	1207 Jul 25 j 04:36	7° $\overline{02}$ 58'10	8°07'28
retrograde	1199 Oct 22 j 13:13	27° $\overline{50}$ 21'55		minimum elong	1207 Jul 25 j 04:19	7° $\overline{02}$ 58'09	8°07'28
opposition	1200 Jan 09 j 19:25	26° $\overline{50}$ 12'35	5°12'21	retrograde	1207 Nov 04 j 17:23	10° $\overline{02}$ 00'39	
min. Earth dist.	1200 Jan 12 j 12:27	26° $\overline{50}$ 08'51	37.02889 AU	opposition	1208 Jan 22 j 03:58	8° $\overline{02}$ 48'28	8°48'34
direct	1200 Mar 31 j 03:06	25° $\overline{50}$ 01'22		min. Earth dist.	1208 Jan 24 j 23:58	8° $\overline{02}$ 44'21	34.98557 AU
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				max. Earth dist.	1208 Jul 22 j 22:21	9° $\overline{02}$ 33'07	36.83558 AU
conjunction	1200 Jul 13 j 00:03	26° $\overline{50}$ 56'51	5°09'05				
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direct	1201 Apr 01 j 19:33	26° $\overline{50}$ 30'14		min. Earth dist.	1209 Jan 25 j 23:31	10° $\overline{02}$ 26'05	34.73125 AU
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				max. Earth dist.	1209 Jul 24 j 23:30	11° $\overline{02}$ 15'49	36.57875 AU
conjunction	1201 Jul 14 j 19:26	28° $\overline{50}$ 26'49	5°34'22				
minimum elong	1201 Jul 14 j 19:15	28° $\overline{50}$ 26'48	5°34'22	conjunction	1209 Jul 28 j 05:03	11° $\overline{02}$ 21'56	8°58'30
	1201 Sep 14 j 02:14	0° $\overline{02}$		minimum elong	1209 Jul 28 j 04:45	11° $\overline{02}$ 21'54	8°58'30
retrograde	1201 Oct 25 j 03:05	0° $\overline{02}$ 22'34		retrograde	1209 Nov 07 j 18:08	13° $\overline{02}$ 26'50	
	1201 Dec 05 j 19:00	30° $\overline{02}$		opposition	1210 Jan 25 j 00:48	12° $\overline{02}$ 13'49	9°42'51
opposition	1202 Jan 12 j 05:56	29° $\overline{02}$ 12'30	6°05'53	min. Earth dist.	1210 Jan 27 j 22:16	12° $\overline{02}$ 09'34	34.47687 AU
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direct	1202 Apr 03 j 10:28	28° $\overline{02}$ 00'25		max. Earth dist.	1210 Jul 26 j 23:07	13° $\overline{02}$ 00'01	36.32209 AU
max. Earth dist.	1202 Jul 13 j 13:49	29° $\overline{02}$ 52'43	38.37454 AU				
				conjunction	1210 Jul 30 j 06:09	13° $\overline{02}$ 06'18	9°23'54
conjunction	1202 Jul 16 j 15:22	29° $\overline{02}$ 58'08	5°59'45	minimum elong	1210 Jul 30 j 05:51	13° $\overline{02}$ 06'16	9°23'54
minimum elong	1202 Jul 16 j 15:10	29° $\overline{02}$ 58'07	5°59'45		1210 Oct 11 j 20:17	15° $\overline{02}$	
	1202 Jul 17 j 16:36	0° $\overline{02}$		retrograde	1210 Nov 09 j 21:32	15° $\overline{02}$ 12'27	
retrograde	1202 Oct 27 j 00:05	1° $\overline{02}$ 54'55			1210 Dec 09 j 06:21	15° $\overline{02}$	
opposition	1203 Jan 14 j 00:04	0° $\overline{02}$ 44'29	6°32'50	opposition	1211 Jan 27 j 00:12	13° $\overline{02}$ 58'59	10°09'52
min. Earth dist.	1203 Jan 16 j 17:38	0° $\overline{02}$ 40'39	36.25701 AU	min. Earth dist.	1211 Jan 29 j 22:17	13° $\overline{02}$ 54'41	34.22305 AU
	1203 Feb 17 j 01:31	30° $\overline{02}$		direct	1211 Apr 17 j 19:03	12° $\overline{02}$ 42'57	
direct	1203 Apr 05 j 03:35	29° $\overline{02}$ 32'00		max. Earth dist.	1211 Jul 29 j 01:20	14° $\overline{02}$ 46'01	36.06598 AU
	1203 May 21 j 14:18	0° $\overline{02}$					
max. Earth dist.	1203 Jul 15 j 08:51	1° $\overline{02}$ 25'19	38.11682 AU	conjunction	1211 Aug 01 j 08:12	14° $\overline{02}$ 52'20	9°49'09
				minimum elong	1211 Aug 01 j 07:52	14° $\overline{02}$ 52'19	9°49'08
conjunction	1203 Jul 18 j 11:53	1° $\overline{02}$ 30'54	6°25'14		1211 Aug 05 j 07:39	15° $\overline{02}$	
minimum elong	1203 Jul 18 j 11:40	1° $\overline{02}$ 30'53	6°25'13	retrograde	1211 Nov 12 j 00:09	16° $\overline{02}$ 59'43	
retrograde	1203 Oct 28 j 23:09	3° $\overline{02}$ 28'46		opposition	1212 Jan 29 j 00:21	15° $\overline{02}$ 45'49	10°36'44
opposition	1204 Jan 15 j 18:41	2° $\overline{02}$ 17'59	6°59'53	min. Earth dist.	1212 Jan 31 j 23:05	15° $\overline{02}$ 41'26	33.97022 AU
min. Earth dist.	1204 Jan 18 j 12:53	2° $\overline{02}$ 14'05	36.00163 AU		1212 Mar 01 j 23:22	15° $\overline{02}$	
direct	1204 Apr 05 j 19:59	1° $\overline{02}$ 05'05		direct	1212 Apr 18 j 20:31	14° $\overline{02}$ 29'16	
max. Earth dist.	1204 Jul 16 j 06:26	2° $\overline{02}$ 59'37	37.86004 AU		1212 Jun 04 j 20:30	15° $\overline{02}$	
				max. Earth dist.	1212 Jul 30 j 03:34	16° $\overline{02}$ 33'38	35.81137 AU
conjunction	1204 Jul 19 j 09:11	3° $\overline{02}$ 05'13	6°50'45				
minimum elong	1204 Jul 19 j 08:57	3° $\overline{02}$ 05'12	6°50'45	conjunction	1212 Aug 02 j 10:42	16° $\overline{02}$ 40'03	10°14'12
retrograde	1204 Oct 29 j 20:50	5° $\overline{02}$ 04'12		minimum elong	1212 Aug 02 j 10:23	16° $\overline{02}$ 40'01	10°14'13
opposition	1205 Jan 16 j 14:07	3° $\overline{02}$ 53'04	7°27'00	retrograde	1212 Nov 13 j 05:06	18° $\overline{02}$ 48'41	
min. Earth dist.	1205 Jan 19 j 08:53	3° $\overline{02}$ 49'07	35.74715 AU	opposition	1213 Jan 30 j 01:11	17° $\overline{02}$ 34'20	11°03'24
direct	1205 Apr 07 j 15:51	2° $\overline{02}$ 39'46		min. Earth dist.	1213 Feb 01 j 23:15	17° $\overline{02}$ 29'57	33.71940 AU
max. Earth dist.	1205 Jul 18 j 03:28	4° $\overline{02}$ 35'28	37.60408 AU	direct	1213 Apr 20 j 22:03	16° $\overline{02}$ 17'16	

max. Earth dist.	1213 Aug 01 j 06:32	18°02'25.9	35.55886 AU	min. Earth dist.	1221 Feb 17 j 10:45	3°08'10	31.84055 AU
				direct	1221 May 06 j 00:11	1°52'00	
conjunction	1213 Aug 04 j 13:49	18°02'29.28	10°39'02	max. Earth dist.	1221 Aug 17 j 16:07	4°09'43	33.67043 AU
minimum elong	1213 Aug 04 j 13:28	18°02'29.26	10°39'01				
retrograde	1213 Nov 15 j 07:33	20°02'39.24		conjunction	1221 Aug 20 j 19:45	4°16'26	13°42'09
opposition	1214 Feb 01 j 02:55	19°02'24.36	11°29'47	minimum elong	1221 Aug 20 j 19:22	4°16'23	13°42'08
min. Earth dist.	1214 Feb 04 j 01:51	19°02'20.08	33.47126 AU	retrograde	1221 Dec 01 j 23:25	6°37'34	
direct	1214 Apr 22 j 22:22	18°02'07.02		opposition	1222 Feb 16 j 22:06	5°19'34	14°44'13
max. Earth dist.	1214 Aug 03 j 11:28	20°02'14.11	35.30949 AU	min. Earth dist.	1222 Feb 19 j 17:49	5°15'05	31.62218 AU
				direct	1222 May 08 j 08:59	3°58'24	
conjunction	1214 Aug 06 j 17:46	20°02'20.40	11°03'33	max. Earth dist.	1222 Aug 20 j 02:28	6°17'36	33.45093 AU
minimum elong	1214 Aug 06 j 17:24	20°02'20.38	11°03'33				
retrograde	1214 Nov 17 j 11:09	22°02'31.55		conjunction	1222 Aug 23 j 06:15	6°24'23	14°02'16
opposition	1215 Feb 03 j 05:09	21°02'16.41	11°55'52	minimum elong	1222 Aug 23 j 05:52	6°24'21	14°02'16
min. Earth dist.	1215 Feb 06 j 02:56	21°02'12.15	33.22658 AU	retrograde	1222 Dec 04 j 09:26	8°46'55	
direct	1215 Apr 25 j 00:29	19°02'58.37		opposition	1223 Feb 19 j 07:25	7°28'30	15°05'30
max. Earth dist.	1215 Aug 05 j 15:28	22°02'07.08	35.06375 AU	min. Earth dist.	1223 Feb 22 j 03:46	7°23'57	31.40790 AU
				direct	1223 May 10 j 15:54	6°06'53	
conjunction	1215 Aug 08 j 22:29	22°02'13.44	11°27'43	max. Earth dist.	1223 Aug 22 j 15:29	8°27'39	33.23596 AU
minimum elong	1215 Aug 08 j 22:07	22°02'13.42	11°27'42				
retrograde	1215 Nov 19 j 16:31	24°02'26.21		conjunction	1223 Aug 25 j 17:33	8°34'21	14°21'33
opposition	1216 Feb 05 j 08:28	23°02'10.42	12°21'32	minimum elong	1223 Aug 25 j 17:10	8°34'19	14°21'32
min. Earth dist.	1216 Feb 08 j 06:43	23°02'06.13	32.98592 AU	retrograde	1223 Dec 06 j 20:07	10°58'16	
direct	1216 Apr 26 j 00:06	21°02'52.10		opposition	1224 Feb 21 j 17:39	9°39'26	15°25'52
max. Earth dist.	1216 Aug 06 j 22:33	24°02'02.16	34.82211 AU	min. Earth dist.	1224 Feb 24 j 12:29	9°34'57	31.19831 AU
				direct	1224 May 12 j 02:10	8°17'21	
conjunction	1216 Aug 10 j 03:58	24°02'08.48	11°51'28	max. Earth dist.	1224 Aug 24 j 03:12	10°39'32	33.02611 AU
minimum elong	1216 Aug 10 j 03:36	24°02'08.46	11°51'28				
retrograde	1216 Nov 20 j 21:59	26°02'22.48		conjunction	1224 Aug 27 j 05:21	10°46'18	14°39'55
opposition	1217 Feb 06 j 12:33	25°02'06.46	12°46'46	minimum elong	1224 Aug 27 j 04:59	10°46'16	14°39'55
min. Earth dist.	1217 Feb 09 j 09:51	25°02'02.19	32.74934 AU	retrograde	1224 Dec 08 j 08:47	13°11'34	
direct	1217 Apr 28 j 03:00	23°02'47.48		opposition	1225 Feb 23 j 04:46	11°52'19	15°45'13
max. Earth dist.	1217 Aug 09 j 04:14	25°02'59.19	34.58460 AU	min. Earth dist.	1225 Feb 25 j 23:16	11°47'50	30.99430 AU
				direct	1225 May 14 j 10:04	10°29'47	
conjunction	1217 Aug 12 j 10:10	26°02'05.58	12°14'44	max. Earth dist.	1225 Aug 26 j 18:20	12°53'34	32.82233 AU
minimum elong	1217 Aug 12 j 09:47	26°02'05.56	12°14'44				
retrograde	1217 Nov 23 j 06:45	28°02'21.24		conjunction	1225 Aug 29 j 18:04	13°00'11	14°57'15
opposition	1218 Feb 08 j 17:22	27°02'04.58	13°11'30	minimum elong	1225 Aug 29 j 17:42	13°00'09	14°57'15
min. Earth dist.	1218 Feb 11 j 14:37	27°02'00.30	32.51692 AU	retrograde	1225 Dec 10 j 20:48	15°26'47	
direct	1218 Apr 30 j 05:50	25°02'45.34		opposition	1226 Feb 25 j 16:40	14°07'07	16°03'28
max. Earth dist.	1218 Aug 11 j 12:40	27°02'58.42	34.35085 AU	min. Earth dist.	1226 Feb 28 j 09:45	14°02'42	30.79663 AU
				direct	1226 May 16 j 20:50	12°44'08	
conjunction	1218 Aug 14 j 17:23	28°02'05.18	12°37'30	max. Earth dist.	1226 Aug 29 j 08:09	15°09'20	32.62555 AU
minimum elong	1218 Aug 14 j 17:00	28°02'05.16	12°37'31				
	1218 Oct 19 j 01:17	0°02'11		conjunction	1226 Sep 01 j 07:21	15°15'57	15°13'30
retrograde	1218 Nov 25 j 14:49	0°02'22.10		minimum elong	1226 Sep 01 j 07:00	15°15'55	15°13'31
	1219 Jan 02 j 23:00	30°02'02		retrograde	1226 Dec 13 j 11:28	17°04'35	
opposition	1219 Feb 10 j 23:15	29°02'05.21	13°35'40	opposition	1227 Feb 28 j 05:26	16°23'48	16°20'29
min. Earth dist.	1219 Feb 13 j 20:37	29°02'00.51	32.28802 AU	min. Earth dist.	1227 Mar 02 j 21:06	16°19'27	30.60632 AU
direct	1219 May 02 j 11:21	27°02'45.32		direct	1227 May 19 j 08:42	15°00'23	
	1219 Aug 13 j 18:36	0°02'11		max. Earth dist.	1227 Sep 01 j 00:56	17°27'11	32.43650 AU
max. Earth dist.	1219 Aug 13 j 20:26	0°02'00.10	34.12063 AU				
				conjunction	1227 Sep 03 j 21:30	17°33'37	15°28'33
conjunction	1219 Aug 17 j 01:20	0°02'06.50	12°59'42	minimum elong	1227 Sep 03 j 21:10	17°33'35	15°28'33
minimum elong	1219 Aug 17 j 00:57	0°02'06.48	12°59'41	retrograde	1227 Dec 16 j 01:18	20°02'49	
retrograde	1219 Nov 28 j 01:23	2°02'25.09		opposition	1228 Mar 01 j 19:11	18°42'22	16°36'10
opposition	1220 Feb 13 j 05:52	1°02'07.57	13°59'13	min. Earth dist.	1228 Mar 04 j 09:44	18°38'06	30.42390 AU
min. Earth dist.	1220 Feb 16 j 02:25	1°02'03.28	32.06260 AU	direct	1228 May 20 j 21:43	17°18'35	
	1220 Apr 04 j 21:51	30°02'02		max. Earth dist.	1228 Sep 02 j 17:00	19°46'49	32.25605 AU
direct	1220 May 03 j 17:22	29°02'47.40					
	1220 Jun 01 j 04:25	0°02'11		conjunction	1228 Sep 05 j 12:15	19°53'10	15°42'19
max. Earth dist.	1220 Aug 15 j 05:46	2°02'03.51	33.89369 AU	minimum elong	1228 Sep 05 j 11:57	19°53'09	15°42'19
				retrograde	1228 Dec 17 j 18:27	22°23'39	
conjunction	1220 Aug 18 j 10:17	2°02'10.34	13°21'16	opposition	1229 Mar 04 j 09:40	21°02'53	16°50'28
minimum elong	1220 Aug 18 j 09:54	2°02'10.32	13°21'17	min. Earth dist.	1229 Mar 06 j 21:46	20°58'45	30.25006 AU
retrograde	1220 Nov 29 j 11:13	4°02'30.18		direct	1229 May 23 j 11:20	19°38'45	
opposition	1221 Feb 14 j 13:39	3°02'12.42	14°22'05	max. Earth dist.	1229 Sep 05 j 10:41	22°08'29	32.08424 AU

conjunction	1229 Sep 08 j 03:41	22° \mathbb{M} 14'41	15°54'43	conjunction	1237 Sep 28 j 05:30	12° \mathbb{A} 07'15	16°37'40
minimum elong	1229 Sep 08 j 03:24	22° \mathbb{M} 14'39	15°54'42	minimum elong	1237 Sep 28 j 05:28	12° \mathbb{A} 07'15	16°37'40
retrograde	1229 Dec 20 j 10:58	24° \mathbb{M} 46'24		retrograde	1238 Jan 09 j 18:47	14° \mathbb{A} 46'28	
opposition	1230 Mar 07 j 01:05	23° \mathbb{M} 25'19	17°03'15	opposition	1238 Mar 27 j 06:43	13° \mathbb{A} 23'30	17°44'18
min. Earth dist.	1230 Mar 09 j 12:26	23° \mathbb{M} 21'13	30.08464 AU	min. Earth dist.	1238 Mar 29 j 01:55	13° \mathbb{A} 20'27	29.05764 AU
direct	1230 May 26 j 01:54	22° \mathbb{M} 00'54		direct	1238 Jun 15 j 01:05	11° \mathbb{A} 57'21	
max. Earth dist.	1230 Sep 08 j 04:56	24° \mathbb{M} 32'04	31.92114 AU	max. Earth dist.	1238 Sep 29 j 05:37	14° \mathbb{A} 37'20	30.92336 AU
conjunction	1230 Sep 10 j 19:52	24° \mathbb{M} 38'06	16°05'41	conjunction	1238 Oct 01 j 01:36	14° \mathbb{A} 41'46	16°35'10
minimum elong	1230 Sep 10 j 19:38	24° \mathbb{M} 38'05	16°05'41	minimum elong	1238 Oct 01 j 01:38	14° \mathbb{A} 41'46	16°35'10
retrograde	1230 Dec 23 j 05:37	27° \mathbb{M} 11'01		retrograde	1239 Jan 12 j 13:35	17° \mathbb{A} 21'31	
opposition	1231 Mar 09 j 17:07	25° \mathbb{M} 49'39	17°14'30	opposition	1239 Mar 30 j 03:56	15° \mathbb{A} 58'22	17°40'51
min. Earth dist.	1231 Mar 12 j 01:54	25° \mathbb{M} 45'43	29.92750 AU	min. Earth dist.	1239 Mar 31 j 21:10	15° \mathbb{A} 55'27	28.97056 AU
direct	1231 May 28 j 18:46	24° \mathbb{M} 24'58		direct	1239 Jun 17 j 22:33	14° \mathbb{A} 32'07	
max. Earth dist.	1231 Sep 10 j 23:30	26° \mathbb{M} 57'28	31.76629 AU	max. Earth dist.	1239 Oct 02 j 04:09	17° \mathbb{A} 12'46	30.84272 AU
conjunction	1231 Sep 13 j 12:51	27° \mathbb{M} 03'24	16°15'10	conjunction	1239 Oct 03 j 21:43	17° \mathbb{A} 16'57	16°30'46
minimum elong	1231 Sep 13 j 12:36	27° \mathbb{M} 03'22	16°15'09	minimum elong	1239 Oct 03 j 21:45	17° \mathbb{A} 16'58	16°30'45
retrograde	1231 Dec 25 j 23:04	29° \mathbb{M} 37'27		retrograde	1240 Jan 15 j 11:10	19° \mathbb{A} 57'10	
opposition	1232 Mar 11 j 10:16	28° \mathbb{M} 15'49	17°24'07	opposition	1240 Apr 01 j 01:31	18° \mathbb{A} 33'53	17°35'19
min. Earth dist.	1232 Mar 13 j 18:25	28° \mathbb{M} 11'55	29.77842 AU	min. Earth dist.	1240 Apr 02 j 14:47	18° \mathbb{A} 31'15	28.89488 AU
direct	1232 May 30 j 09:46	26° \mathbb{M} 50'53		direct	1240 Jun 19 j 20:00	17° \mathbb{A} 07'34	
max. Earth dist.	1232 Sep 12 j 19:43	29° \mathbb{M} 24'45	31.61977 AU	max. Earth dist.	1240 Oct 04 j 04:16	19° \mathbb{A} 48'55	30.77394 AU
conjunction	1232 Sep 15 j 06:17	29° \mathbb{M} 30'27	16°23'06	conjunction	1240 Oct 05 j 18:00	19° \mathbb{A} 52'44	16°24'25
minimum elong	1232 Sep 15 j 06:06	29° \mathbb{M} 30'26	16°23'06	minimum elong	1240 Oct 05 j 18:06	19° \mathbb{A} 52'45	16°24'24
	1232 Sep 27 j 23:12	0° \mathbb{A}		retrograde	1241 Jan 17 j 07:09	22° \mathbb{A} 33'19	
retrograde	1232 Dec 27 j 18:05	2° \mathbb{A} 05'34		opposition	1241 Apr 03 j 23:31	21° \mathbb{A} 09'57	17°27'40
opposition	1233 Mar 14 j 04:06	0° \mathbb{A} 43'42	17°32'03	min. Earth dist.	1241 Apr 05 j 10:45	21° \mathbb{A} 07'28	28.83095 AU
min. Earth dist.	1233 Mar 16 j 09:39	0° \mathbb{A} 39'58	29.63723 AU	direct	1241 Jun 22 j 16:59	19° \mathbb{A} 43'38	
	1233 Apr 10 j 13:47	30° \mathbb{R} \mathbb{M}		max. Earth dist.	1241 Oct 07 j 03:47	22° \mathbb{A} 25'31	30.71752 AU
direct	1233 Jun 02 j 03:57	29° \mathbb{M} 18'32		conjunction	1241 Oct 08 j 14:24	22° \mathbb{A} 29'01	16°16'06
	1233 Jul 22 j 18:53	0° \mathbb{A}		minimum elong	1241 Oct 08 j 14:31	22° \mathbb{A} 29'02	16°16'06
max. Earth dist.	1233 Sep 15 j 14:58	1° \mathbb{A} 53'32	31.48138 AU	retrograde	1242 Jan 20 j 05:17	25° \mathbb{A} 09'52	
conjunction	1233 Sep 18 j 00:26	1° \mathbb{A} 59'10	16°29'27	opposition	1242 Apr 06 j 21:25	23° \mathbb{A} 46'28	17°17'55
minimum elong	1233 Sep 18 j 00:15	1° \mathbb{A} 59'08	16°29'26	min. Earth dist.	1242 Apr 08 j 04:37	23° \mathbb{A} 44'15	28.77890 AU
retrograde	1233 Dec 30 j 13:32	4° \mathbb{A} 35'16		direct	1242 Jun 25 j 16:40	22° \mathbb{A} 20'10	
opposition	1234 Mar 16 j 22:33	3° \mathbb{A} 13'10	17°38'14	max. Earth dist.	1242 Oct 10 j 03:40	25° \mathbb{A} 02'31	30.67310 AU
min. Earth dist.	1234 Mar 19 j 03:00	3° \mathbb{A} 09'29	29.50410 AU	conjunction	1242 Oct 11 j 10:58	25° \mathbb{A} 05'41	16°05'51
direct	1234 Jun 04 j 20:04	1° \mathbb{A} 47'45		minimum elong	1242 Oct 11 j 11:09	25° \mathbb{A} 05'43	16°05'51
max. Earth dist.	1234 Sep 18 j 12:52	4° \mathbb{A} 24'00	31.35141 AU	retrograde	1243 Jan 23 j 01:51	27° \mathbb{A} 46'43	
conjunction	1234 Sep 20 j 19:14	4° \mathbb{A} 29'21	16°34'07	opposition	1243 Apr 09 j 19:51	26° \mathbb{A} 23'19	17°06'04
minimum elong	1234 Sep 20 j 19:06	4° \mathbb{A} 29'21	16°34'08	min. Earth dist.	1243 Apr 11 j 01:01	26° \mathbb{A} 21'16	28.73850 AU
retrograde	1235 Jan 02 j 07:35	7° \mathbb{A} 06'22		direct	1243 Jun 28 j 14:07	24° \mathbb{A} 57'06	
opposition	1235 Mar 19 j 17:48	5° \mathbb{A} 44'02	17°42'37	max. Earth dist.	1243 Oct 13 j 03:43	27° \mathbb{A} 39'49	30.64051 AU
min. Earth dist.	1235 Mar 21 j 19:56	5° \mathbb{A} 40'31	29.37901 AU	conjunction	1243 Oct 14 j 07:24	27° \mathbb{A} 42'37	15°53'42
direct	1235 Jun 07 j 15:32	4° \mathbb{A} 18'25		minimum elong	1243 Oct 14 j 07:36	27° \mathbb{A} 42'39	15°53'42
max. Earth dist.	1235 Sep 21 j 09:06	6° \mathbb{A} 55'37	31.23003 AU		1243 Dec 20 j 14:45	0° \mathbb{M}	
conjunction	1235 Sep 23 j 14:17	7° \mathbb{A} 00'53	16°37'05	retrograde	1244 Jan 25 j 23:33	0° \mathbb{M} 23'44	
minimum elong	1235 Sep 23 j 14:10	7° \mathbb{A} 00'52	16°37'05		1244 Mar 03 j 13:35	30° \mathbb{R} \mathbb{A}	
retrograde	1236 Jan 05 j 03:21	9° \mathbb{A} 38'44		opposition	1244 Apr 11 j 18:20	29° \mathbb{A} 00'21	16°52'11
opposition	1236 Mar 21 j 13:37	8° \mathbb{A} 16'10	17°45'08	min. Earth dist.	1244 Apr 12 j 19:37	28° \mathbb{A} 58'34	28.70926 AU
min. Earth dist.	1236 Mar 23 j 13:47	8° \mathbb{A} 12'47	29.26257 AU	direct	1244 Jun 30 j 13:42	27° \mathbb{A} 34'15	
direct	1236 Jun 09 j 09:41	6° \mathbb{A} 50'21			1244 Oct 08 j 01:40	0° \mathbb{M}	
max. Earth dist.	1236 Sep 23 j 08:21	9° \mathbb{A} 28'38	31.11780 AU	max. Earth dist.	1244 Oct 15 j 02:49	0° \mathbb{M} 17'07	30.61914 AU
conjunction	1236 Sep 25 j 09:53	9° \mathbb{A} 33'35	16°38'17	conjunction	1244 Oct 16 j 03:49	0° \mathbb{M} 19'39	15°39'40
minimum elong	1236 Sep 25 j 09:51	9° \mathbb{A} 33'34	16°38'18	minimum elong	1244 Oct 16 j 04:04	0° \mathbb{M} 19'41	15°39'40
retrograde	1237 Jan 06 j 22:13	12° \mathbb{A} 12'09		retrograde	1245 Jan 27 j 21:40	3° \mathbb{M} 00'44	
opposition	1237 Mar 24 j 10:00	10° \mathbb{A} 49'23	17°45'43	opposition	1245 Apr 14 j 16:54	1° \mathbb{M} 37'23	16°36'17
min. Earth dist.	1237 Mar 26 j 08:09	10° \mathbb{A} 46'07	29.15517 AU	min. Earth dist.	1245 Apr 15 j 15:51	1° \mathbb{M} 35'46	28.69098 AU
direct	1237 Jun 12 j 05:09	9° \mathbb{A} 23'23		direct	1245 Jul 03 j 11:51	0° \mathbb{M} 11'24	
max. Earth dist.	1237 Sep 26 j 05:41	12° \mathbb{A} 02'28	31.01538 AU	max. Earth dist.	1245 Oct 18 j 02:59	2° \mathbb{M} 54'26	30.60880 AU

conjunction	1245 Oct 19 j 00:09	2°M.56'34	15°23'48	minimum elong	1253 Nov 08 j 06:00	23°M.24'19	12°18'31
minimum elong	1245 Oct 19 j 00:25	2°M.56'36	15°23'49	max. Earth dist.	1253 Nov 08 j 10:25	23°M.24'45	30.90884 AU
retrograde	1246 Jan 30 j 17:19	5°M.37'30		retrograde	1254 Feb 19 j 18:05	26°M.00'37	
opposition	1246 Apr 17 j 15:27	4°M.14'13	16°18'26	opposition	1254 May 08 j 18:37	24°M.38'12	12°53'42
min. Earth dist.	1246 Apr 18 j 11:08	4°M.12'50	28.68303 AU	min. Earth dist.	1254 May 08 j 13:17	24°M.38'34	28.99860 AU
direct	1246 Jul 06 j 11:53	2°M.48'23		direct	1254 Jul 27 j 17:23	23°M.14'01	
conjunction	1246 Oct 21 j 20:14	5°M.33'10	15°06'11	conjunction	1254 Nov 10 j 21:51	25°M.52'15	11°49'06
minimum elong	1246 Oct 21 j 20:32	5°M.33'12	15°06'10	minimum elong	1254 Nov 10 j 22:15	25°M.52'18	11°49'06
max. Earth dist.	1246 Oct 21 j 01:14	5°M.31'15	30.60890 AU	max. Earth dist.	1254 Nov 11 j 05:59	25°M.53'04	30.99746 AU
retrograde	1247 Feb 02 j 14:05	8°M.13'51		retrograde	1255 Feb 22 j 10:38	28°M.27'44	
opposition	1247 Apr 20 j 13:54	6°M.50'38	15°58'42	opposition	1255 May 11 j 13:53	27°M.05'34	12°21'34
min. Earth dist.	1247 Apr 21 j 06:46	6°M.49'27	28.68538 AU	min. Earth dist.	1255 May 11 j 04:22	27°M.06'13	29.08887 AU
direct	1247 Jul 09 j 09:44	5°M.24'56		direct	1255 Jul 30 j 14:19	25°M.41'45	
conjunction	1247 Oct 24 j 16:12	8°M.09'15	14°46'51	conjunction	1255 Nov 13 j 13:29	28°M.18'52	11°18'37
minimum elong	1247 Oct 24 j 16:31	8°M.09'17	14°46'51	minimum elong	1255 Nov 13 j 13:53	28°M.18'55	11°18'38
max. Earth dist.	1247 Oct 24 j 01:20	8°M.07'45	30.61946 AU	max. Earth dist.	1255 Nov 14 j 00:41	28°M.19'58	31.09716 AU
retrograde	1248 Feb 05 j 09:16	10°M.49'34			1255 Dec 30 j 09:20	0° 2	
opposition	1248 Apr 22 j 12:21	9°M.26'25	15°37'10	retrograde	1256 Feb 25 j 03:25	0° 2 53'27	
min. Earth dist.	1248 Apr 23 j 02:28	9°M.25'25	28.69777 AU		1256 Apr 25 j 13:07	30°R.M.	
direct	1248 Jul 11 j 09:12	8°M.00'53		opposition	1256 May 13 j 08:47	29°M.31'33	11°48'20
conjunction	1248 Oct 26 j 11:34	10°M.44'35	14°25'51	min. Earth dist.	1256 May 12 j 20:34	29°M.32'22	29.19015 AU
minimum elong	1248 Oct 26 j 11:54	10°M.44'37	14°25'51	direct	1256 Aug 01 j 09:17	28°M.08'06	
max. Earth dist.	1248 Oct 25 j 22:48	10°M.43'17	30.64033 AU		1256 Oct 27 j 01:29	0° 2	
retrograde	1249 Feb 07 j 04:53	13°M.24'26		conjunction	1256 Nov 15 j 04:29	0° 2 44'05	10°47'09
opposition	1249 Apr 25 j 10:23	12°M.01'21	15°13'52	minimum elong	1256 Nov 15 j 04:53	0° 2 44'07	10°47'09
min. Earth dist.	1249 Apr 25 j 20:56	12°M.00'37	28.72043 AU	max. Earth dist.	1256 Nov 15 j 19:21	0° 2 45'32	31.20745 AU
direct	1249 Jul 14 j 07:17	10°M.35'59		retrograde	1257 Feb 26 j 18:33	3° 2 17'42	
conjunction	1249 Oct 29 j 06:46	13°M.18'58	14°03'17	min. Earth dist.	1257 May 15 j 11:32	1° 2 57'08	29.30148 AU
minimum elong	1249 Oct 29 j 07:07	13°M.19'00	14°03'17	opposition	1257 May 16 j 02:58	1° 2 56'05	11°14'06
max. Earth dist.	1249 Oct 28 j 22:11	13°M.18'06	30.67162 AU	direct	1257 Aug 04 j 05:52	0° 2 33'03	
	1249 Dec 13 j 12:18	15°M.		conjunction	1257 Nov 17 j 18:52	3° 2 07'50	10°14'50
retrograde	1250 Feb 09 j 21:24	15°M.58'15		minimum elong	1257 Nov 17 j 19:15	3° 2 07'52	10°14'51
	1250 Apr 13 j 06:59	15°R.M.		max. Earth dist.	1257 Nov 18 j 11:54	3° 2 09'29	31.32733 AU
opposition	1250 Apr 28 j 08:02	14°M.35'15	14°48'53	retrograde	1258 Mar 01 j 09:20	5° 2 40'27	
min. Earth dist.	1250 Apr 28 j 16:17	14°M.34'41	28.75341 AU	opposition	1258 May 18 j 20:27	4° 2 19'08	10°39'01
direct	1250 Jul 17 j 05:50	13°M.10'04		min. Earth dist.	1258 May 18 j 02:04	4° 2 20'22	29.42234 AU
	1250 Oct 09 j 22:39	15°M.		direct	1258 Aug 06 j 22:54	2° 2 56'29	
conjunction	1250 Nov 01 j 01:18	15°M.52'14	13°39'11	conjunction	1258 Nov 20 j 08:47	5° 2 30'02	9°41'46
minimum elong	1250 Nov 01 j 01:41	15°M.52'16	13°39'11	minimum elong	1258 Nov 20 j 09:09	5° 2 30'04	9°41'45
max. Earth dist.	1250 Oct 31 j 19:01	15°M.51'36	30.71371 AU	max. Earth dist.	1258 Nov 21 j 05:33	5° 2 32'02	31.45624 AU
retrograde	1251 Feb 12 j 16:31	18°M.30'52		retrograde	1259 Mar 03 j 22:15	8° 2 01'37	
opposition	1251 May 01 j 05:20	17°M.07'58	14°22'18	opposition	1259 May 21 j 13:29	6° 2 40'36	10°03'12
min. Earth dist.	1251 May 01 j 09:24	17°M.07'41	28.79732 AU	min. Earth dist.	1259 May 20 j 16:46	6° 2 41'59	29.55187 AU
direct	1251 Jul 20 j 03:22	15°M.42'58		direct	1259 Aug 09 j 18:27	5° 2 18'21	
conjunction	1251 Nov 03 j 19:18	18°M.24'15	13°13'39	conjunction	1259 Nov 22 j 21:44	7° 2 50'37	9°08'02
minimum elong	1251 Nov 03 j 19:41	18°M.24'17	13°13'39	minimum elong	1259 Nov 22 j 22:05	7° 2 50'39	9°08'03
max. Earth dist.	1251 Nov 03 j 17:19	18°M.24'03	30.76694 AU	max. Earth dist.	1259 Nov 23 j 20:07	7° 2 52'45	31.59344 AU
retrograde	1252 Feb 15 j 08:25	21°M.02'10		retrograde	1260 Mar 05 j 12:34	10° 2 21'07	
opposition	1252 May 03 j 02:24	19°M.39'24	13°54'10	min. Earth dist.	1260 May 22 j 05:38	9° 2 02'00	29.68968 AU
min. Earth dist.	1252 May 03 j 04:06	19°M.39'17	28.85261 AU	opposition	1260 May 23 j 05:48	9° 2 00'23	9°26'44
direct	1252 Jul 22 j 00:07	18°M.14'38		direct	1260 Aug 11 j 11:17	7° 2 38'31	
conjunction	1252 Nov 05 j 12:43	20°M.54'56	12°46'43	conjunction	1260 Nov 24 j 10:17	10° 2 09'28	8°33'46
minimum elong	1252 Nov 05 j 13:07	20°M.54'58	12°46'43	minimum elong	1260 Nov 24 j 10:37	10° 2 09'30	8°33'46
max. Earth dist.	1252 Nov 05 j 13:40	20°M.55'02	30.83199 AU	max. Earth dist.	1260 Nov 25 j 12:11	10° 2 11'56	31.73845 AU
retrograde	1253 Feb 17 j 01:57	23°M.32'05		retrograde	1261 Mar 07 j 22:05	12° 2 38'51	
opposition	1253 May 05 j 22:39	22°M.09'28	13°24'37	opposition	1261 May 25 j 21:18	11° 2 18'25	8°49'45
min. Earth dist.	1253 May 05 j 19:50	22°M.09'40	28.91971 AU	min. Earth dist.	1261 May 24 j 19:35	11° 2 20'07	29.83520 AU
direct	1253 Jul 24 j 22:11	20°M.44'59		direct	1261 Aug 14 j 04:08	9° 2 56'55	
conjunction	1253 Nov 08 j 05:37	23°M.24'16	12°18'31	conjunction	1261 Nov 26 j 21:55	12° 2 26'30	7°59'03

minimum elong	1261 Nov 26 j 22:14	12°♂26'32	7°59'03	retrograde	1270 Mar 26 j 23:55	1°♂53'15	
max. Earth dist.	1261 Nov 28 j 01:16	12°♂29'05	31.89097 AU	min. Earth dist.	1270 Jun 13 j 06:45	0°♂38'39	31.49640 AU
retrograde	1262 Mar 10 j 08:58	14°♂54'43		opposition	1270 Jun 15 j 07:03	0°♂35'37	3°08'01
min. Earth dist.	1262 May 27 j 06:45	13°♂36'29	29.98827 AU		1270 Jul 09 j 19:05	30°R♂	
opposition	1262 May 28 j 12:01	13°♂34'34	8°12'21	direct	1270 Sep 03 j 20:48	29°♂17'43	
direct	1262 Aug 16 j 19:31	12°♂13'25			1270 Oct 27 j 00:45	0°♂	
conjunction	1262 Nov 29 j 08:46	14°♂41'38	7°23'57	conjunction	1270 Dec 15 j 20:51	1°♂35'03	2°39'10
minimum elong	1262 Nov 29 j 09:04	14°♂41'40	7°23'57	minimum elong	1270 Dec 15 j 20:57	1°♂35'04	2°39'10
max. Earth dist.	1262 Nov 30 j 15:26	14°♂44'30	32.05077 AU	max. Earth dist.	1270 Dec 17 j 21:52	1°♂39'22	33.60411 AU
retrograde	1263 Mar 12 j 18:08	17°♂08'41		retrograde	1271 Mar 29 j 04:40	3°♂52'45	
min. Earth dist.	1263 May 29 j 19:18	15°♂50'48	30.14902 AU	min. Earth dist.	1271 Jun 15 j 11:58	2°♂38'40	31.71513 AU
opposition	1263 May 31 j 02:10	15°♂48'47	7°34'36	opposition	1271 Jun 17 j 15:10	2°♂35'28	2°30'31
direct	1263 Aug 19 j 09:05	14°♂28'00		direct	1271 Sep 06 j 05:41	1°♂18'01	
conjunction	1263 Dec 01 j 18:50	16°♂54'47	6°48'34	conjunction	1271 Dec 18 j 01:26	3°♂34'03	2°04'08
minimum elong	1263 Dec 01 j 19:06	16°♂54'49	6°48'35	minimum elong	1271 Dec 18 j 01:31	3°♂34'04	2°04'09
max. Earth dist.	1263 Dec 03 j 03:41	16°♂57'51	32.21830 AU	max. Earth dist.	1271 Dec 20 j 04:49	3°♂38'32	33.82592 AU
retrograde	1264 Mar 14 j 03:31	19°♂20'38		retrograde	1272 Mar 30 j 08:29	5°♂50'38	
min. Earth dist.	1264 May 31 j 04:53	18°♂03'15	30.31777 AU	min. Earth dist.	1272 Jun 16 j 18:44	4°♂36'57	31.93818 AU
opposition	1264 Jun 01 j 15:21	18°♂01'01	6°56'36	opposition	1272 Jun 18 j 22:43	4°♂33'43	1°53'23
direct	1264 Aug 21 j 00:09	16°♂40'35		direct	1272 Sep 07 j 12:26	3°♂16'41	
conjunction	1264 Dec 03 j 04:01	19°♂05'59	6°12'59	conjunction	1272 Dec 19 j 05:24	5°♂31'27	1°29'25
minimum elong	1264 Dec 03 j 04:16	19°♂06'00	6°12'58	minimum elong	1272 Dec 19 j 05:27	5°♂31'27	1°29'24
max. Earth dist.	1264 Dec 04 j 15:38	19°♂09'16	32.39369 AU	max. Earth dist.	1272 Dec 21 j 10:01	5°♂36'00	34.05150 AU
retrograde	1265 Mar 16 j 12:55	21°♂30'38		retrograde	1273 Apr 01 j 12:06	7°♂46'55	
min. Earth dist.	1265 Jun 02 j 15:16	20°♂13'39	30.49490 AU	min. Earth dist.	1273 Jun 18 j 23:15	6°♂33'42	32.16468 AU
opposition	1265 Jun 04 j 03:55	20°♂11'17	6°18'27	opposition	1273 Jun 21 j 05:24	6°♂30'21	1°16'38
direct	1265 Aug 23 j 12:05	18°♂51'14		direct	1273 Sep 09 j 20:20	5°♂13'43	
conjunction	1265 Dec 05 j 12:38	21°♂15'14	5°37'15	conjunction	1273 Dec 21 j 08:40	7°♂27'13	0°55'04
minimum elong	1265 Dec 05 j 12:52	21°♂15'16	5°37'15	minimum elong	1273 Dec 21 j 08:42	7°♂27'13	0°55'04
max. Earth dist.	1265 Dec 07 j 03:04	21°♂18'45	32.57733 AU	max. Earth dist.	1273 Dec 23 j 14:25	7°♂31'50	34.28000 AU
retrograde	1266 Mar 18 j 20:54	23°♂38'42		retrograde	1274 Apr 03 j 16:46	9°♂41'35	
min. Earth dist.	1266 Jun 04 j 23:57	22°♂22'12	30.68026 AU	min. Earth dist.	1274 Jun 21 j 04:06	8°♂28'43	32.39437 AU
opposition	1266 Jun 06 j 15:28	22°♂19'39	5°40'12	opposition	1274 Jun 23 j 11:28	8°♂25'20	0°40'19
direct	1266 Aug 26 j 01:01	21°♂00'01		direct	1274 Sep 12 j 01:14	7°♂09'06	
conjunction	1266 Dec 07 j 20:25	23°♂22'39	5°01'28	conjunction	1274 Dec 23 j 11:25	9°♂21'20	0°21'08
minimum elong	1266 Dec 07 j 20:37	23°♂22'40	5°01'27	minimum elong	1274 Dec 23 j 11:26	9°♂21'20	0°21'07
max. Earth dist.	1266 Dec 09 j 12:48	23°♂26'18	32.76894 AU	max. Earth dist.	1274 Dec 25 j 19:07	9°♂26'04	34.51146 AU
retrograde	1267 Mar 21 j 05:42	25°♂44'56		retrograde	1275 Apr 05 j 19:06	11°♂34'35	
min. Earth dist.	1267 Jun 07 j 08:10	24°♂28'55	30.87386 AU	min. Earth dist.	1275 Jun 23 j 08:17	10°♂22'05	32.62703 AU
opposition	1267 Jun 09 j 02:31	24°♂26'13	5°01'58	opposition	1275 Jun 25 j 16:52	10°♂18'38	0°04'29
direct	1267 Aug 28 j 11:56	23°♂07'00		desc. node	1275 Aug 11 j 01:24	9°♂19'19	
conjunction	1267 Dec 10 j 03:32	25°♂28'16	4°25'42	direct	1275 Sep 14 j 07:44	9°♂02'47	
minimum elong	1267 Dec 10 j 03:43	25°♂28'17	4°25'42	conjunction	1275 Dec 25 j 13:13	11°♂13'46	0°-12'-26
max. Earth dist.	1267 Dec 11 j 23:19	25°♂32'13	32.96825 AU	minimum elong	1275 Dec 25 j 13:13	11°♂13'46	0°12'26
retrograde	1268 Mar 22 j 12:29	27°♂49'23		behind sun begin	1275 Dec 25 j 08:58	11°♂13'26	
min. Earth dist.	1268 Jun 08 j 16:32	26°♂33'50	31.07488 AU	behind sun end	1275 Dec 25 j 17:27	11°♂14'07	
opposition	1268 Jun 10 j 12:49	26°♂31'01	4°23'48	max. Earth dist.	1275 Dec 27 j 21:35	11°♂18'31	34.74580 AU
direct	1268 Aug 30 j 00:53	25°♂12'14		retrograde	1276 Apr 06 j 21:57	13°♂25'55	
conjunction	1268 Dec 11 j 09:55	27°♂32'11	3°50'01	min. Earth dist.	1276 Jun 24 j 10:46	12°♂13'51	32.86312 AU
minimum elong	1268 Dec 11 j 10:04	27°♂32'12	3°50'00	opposition	1276 Jun 26 j 21:33	12°♂10'17	0°-30'-49
max. Earth dist.	1268 Dec 13 j 06:56	27°♂36'12	33.17441 AU	direct	1276 Sep 15 j 12:16	10°♂54'47	
retrograde	1269 Mar 24 j 20:19	29°♂52'09		conjunction	1276 Dec 26 j 14:37	13°♂04'34	0°-45'-27
min. Earth dist.	1269 Jun 10 j 22:48	28°♂37'08	31.28273 AU	minimum elong	1276 Dec 26 j 14:35	13°♂04'34	0°45'28
opposition	1269 Jun 12 j 22:09	28°♂34'08	3°45'48	max. Earth dist.	1276 Dec 29 j 01:35	13°♂09'30	34.98345 AU
direct	1269 Sep 01 j 10:33	27°♂15'48		retrograde	1277 Apr 08 j 21:27	15°♂15'37	
conjunction	1269 Dec 13 j 15:48	29°♂34'26	3°14'29	min. Earth dist.	1277 Jun 26 j 13:57	14°♂03'52	33.10281 AU
minimum elong	1269 Dec 13 j 15:56	29°♂34'27	3°14'30	opposition	1277 Jun 29 j 01:22	14°♂00'17	-1°-5'-35
max. Earth dist.	1269 Dec 15 j 15:51	29°♂38'41	33.38665 AU	direct	1277 Sep 17 j 19:12	12°♂45'10	
	1269 Dec 25 j 18:00	0°♂		conjunction	1277 Dec 28 j 15:16	14°♂53'45	-1°-17'-59

minimum elong	1277 Dec 28 j 15:13	14°  53'45	1°17'59	retrograde	1286 Apr 24 j 07:33	0°  40'18	
max. Earth dist.	1277 Dec 31 j 02:43	14°  58'41	35.22475 AU		1286 Jun 21 j 07:33	30°  R 	
retrograde	1278 Apr 10 j 22:37	17°  03'45		min. Earth dist.	1286 Jul 12 j 12:48	29°  31'51	35.38539 AU
min. Earth dist.	1278 Jun 28 j 14:30	15°  52'28	33.34645 AU	opposition	1286 Jul 15 j 09:54	29°  327'52	-5°-50'-22
opposition	1278 Jul 01 j 04:35	15°  48'44	-1°-39'-47	direct	1286 Oct 04 j 06:45	28°  316'08	
direct	1278 Sep 19 j 23:26	14°  33'59			1287 Jan 04 j 18:05	0° 	
conjunction	1278 Dec 30 j 15:16	16°  41'24	-1°-50'00	conjunction	1287 Jan 12 j 21:49	0°  15'10	-5°-45'-3
minimum elong	1278 Dec 30 j 15:12	16°  41'24	1°50'01	minimum elong	1287 Jan 12 j 21:39	0°  15'09	5°45'04
max. Earth dist.	1279 Jan 02 j 05:04	16°  46'30	35.46974 AU	max. Earth dist.	1287 Jan 15 j 18:30	0°  20'31	37.50407 AU
retrograde	1279 Apr 12 j 20:32	18°  50'24		retrograde	1287 Apr 26 j 02:14	2°  16'41	
min. Earth dist.	1279 Jun 30 j 16:42	17°  39'27	33.59394 AU	min. Earth dist.	1287 Jul 14 j 09:53	1°  08'32	35.64200 AU
opposition	1279 Jul 03 j 07:22	17°  35'42	-2°-13'-23	opposition	1287 Jul 17 j 08:06	1°  04'31	-6°-18'-40
direct	1279 Sep 22 j 02:54	16°  21'21			1287 Sep 13 j 13:29	30°  R 	
conjunction	1280 Jan 01 j 14:50	18°  27'38	-2°-21'-28	direct	1287 Oct 06 j 06:26	29°  353'04	
minimum elong	1280 Jan 01 j 14:45	18°  27'38	2°21'28		1287 Oct 28 j 10:27	0° 	
max. Earth dist.	1280 Jan 04 j 05:41	18°  32'47	35.71838 AU	conjunction	1288 Jan 14 j 17:28	1°  51'08	-6°-11'-40
retrograde	1280 Apr 13 j 19:08	20°  35'38		minimum elong	1288 Jan 14 j 17:17	1°  51'07	6°11'41
min. Earth dist.	1280 Jul 01 j 16:26	19°  25'08	33.84489 AU	max. Earth dist.	1288 Jan 17 j 14:33	1°  56'28	37.75871 AU
opposition	1280 Jul 04 j 09:17	19°  21'16	-2°-46'-22	retrograde	1288 Apr 26 j 22:41	3°  51'45	
direct	1280 Sep 23 j 05:23	18°  07'19		min. Earth dist.	1288 Jul 15 j 07:12	2°  43'51	35.89836 AU
conjunction	1281 Jan 02 j 13:45	20°  12'31	-2°-52'-21	opposition	1288 Jul 18 j 05:45	2°  39'50	-6°-46'-17
minimum elong	1281 Jan 02 j 13:39	20°  12'30	2°52'23	direct	1288 Oct 07 j 02:59	1°  28'41	
max. Earth dist.	1281 Jan 05 j 05:54	20°  17'43	35.96995 AU	conjunction	1289 Jan 15 j 12:43	3°  25'46	-6°-37'-39
retrograde	1281 Apr 15 j 19:39	22°  19'33		minimum elong	1289 Jan 15 j 12:31	3°  25'46	6°37'40
min. Earth dist.	1281 Jul 03 j 16:58	21°  09'25	34.09878 AU	max. Earth dist.	1289 Jan 18 j 11:05	3°  31'10	38.01323 AU
opposition	1281 Jul 06 j 10:47	21°  05'31	-3°-18'-42	retrograde	1289 Apr 28 j 17:27	5°  25'32	
direct	1281 Sep 25 j 04:20	19°  35'1'58		min. Earth dist.	1289 Jul 17 j 03:55	4°  17'53	36.15470 AU
conjunction	1282 Jan 04 j 12:16	21°  35'05	-3°-22'-39	opposition	1289 Jul 20 j 02:48	4°  13'51	-7°-13'-12
minimum elong	1282 Jan 04 j 12:10	21°  35'05	3°22'40	direct	1289 Oct 09 j 01:00	3°  02'59	
max. Earth dist.	1282 Jan 07 j 06:02	22°  01'23	36.22395 AU	conjunction	1290 Jan 17 j 07:16	4°  59'09	-7°-2'-59
retrograde	1282 Apr 17 j 17:43	24°  02'10		minimum elong	1290 Jan 17 j 07:05	4°  59'09	7°03'01
min. Earth dist.	1282 Jul 05 j 16:54	22°  35'25	34.35468 AU	max. Earth dist.	1290 Jan 20 j 05:22	5°  04'29	38.26791 AU
opposition	1282 Jul 08 j 11:36	22°  48'30	-3°-50'-22	retrograde	1290 Apr 30 j 14:10	6°  58'04	
direct	1282 Sep 27 j 06:10	21°  35'20		min. Earth dist.	1290 Jul 18 j 23:01	5°  50'44	36.41167 AU
conjunction	1283 Jan 06 j 10:13	23°  38'24	-3°-52'-22	opposition	1290 Jul 21 j 23:23	5°  46'39	-7°-39'-26
minimum elong	1283 Jan 06 j 10:05	23°  38'23	3°52'23	direct	1290 Oct 10 j 20:08	4°  36'04	
max. Earth dist.	1283 Jan 09 j 04:06	23°  43'40	36.47953 AU	conjunction	1291 Jan 19 j 01:35	6°  31'21	-7°-27'-41
retrograde	1283 Apr 19 j 18:27	25°  43'33		minimum elong	1291 Jan 19 j 01:23	6°  31'20	7°27'42
min. Earth dist.	1283 Jul 07 j 15:49	24°  34'12	34.61214 AU	max. Earth dist.	1291 Jan 22 j 01:29	6°  36'47	38.52329 AU
opposition	1283 Jul 10 j 12:02	24°  30'13	-4°-21'-23	retrograde	1291 May 02 j 07:59	8°  29'27	
direct	1283 Sep 29 j 05:14	23°  17'26		min. Earth dist.	1291 Jul 20 j 19:29	7°  22'21	36.66939 AU
conjunction	1284 Jan 08 j 07:48	25°  19'29	-4°-21'-28	opposition	1291 Jul 23 j 19:34	7°  18'18	-8°-4'-57
minimum elong	1284 Jan 08 j 07:40	25°  19'28	4°21'28	direct	1291 Oct 12 j 16:49	6°  08'02	
max. Earth dist.	1284 Jan 11 j 03:35	25°  24'52	36.73602 AU	conjunction	1292 Jan 20 j 19:21	8°  02'27	-7°-51'-43
retrograde	1284 Apr 20 j 16:06	27°  23'43		minimum elong	1292 Jan 20 j 19:09	8°  02'26	7°51'45
min. Earth dist.	1284 Jul 08 j 15:57	26°  14'38	34.87013 AU	max. Earth dist.	1292 Jan 23 j 19:10	8°  07'51	38.77945 AU
opposition	1284 Jul 11 j 11:56	26°  10'41	-4°-51'-43	retrograde	1292 May 03 j 00:30	9°  59'46	
direct	1284 Sep 30 j 06:22	24°  35'8'17		min. Earth dist.	1292 Jul 21 j 13:20	8°  53'02	36.92777 AU
conjunction	1285 Jan 09 j 04:57	26°  35'19	-4°-49'-57	opposition	1292 Jul 24 j 15:09	8°  48'54	-8°-29'-46
minimum elong	1285 Jan 09 j 04:48	26°  35'18	4°49'58	direct	1292 Oct 13 j 13:43	7°  38'58	
max. Earth dist.	1285 Jan 12 j 00:19	27°  04'38	36.99262 AU	conjunction	1293 Jan 21 j 12:49	9°  32'33	-8°-15'-7
retrograde	1285 Apr 22 j 13:18	29°  02'38		minimum elong	1293 Jan 21 j 12:37	9°  32'32	8°15'08
min. Earth dist.	1285 Jul 10 j 13:26	27°  53'56	35.12804 AU	max. Earth dist.	1293 Jan 24 j 13:40	9°  37'59	39.03595 AU
opposition	1285 Jul 13 j 11:01	27°  49'55	-5°-21'-23	retrograde	1293 May 04 j 16:53	11°  29'07	
direct	1285 Oct 02 j 05:52	26°  37'51		min. Earth dist.	1293 Jul 23 j 08:44	10°  22'38	37.18648 AU
conjunction	1286 Jan 11 j 01:41	28°  37'54	-5°-17'-49	opposition	1293 Jul 26 j 10:16	10°  18'32	-8°-53'-53
minimum elong	1286 Jan 11 j 01:32	28°  37'53	5°17'49	direct	1293 Oct 15 j 09:51	9°  08'56	
max. Earth dist.	1286 Jan 13 j 22:13	28°  43'15	37.24867 AU	conjunction	1294 Jan 23 j 05:56	11°  01'43	-8°-37'-53
	1286 Feb 28 j 01:40	0° 		minimum elong	1294 Jan 23 j 05:44	11°  01'42	8°37'54

max. Earth dist.	1294 Jan 26 j 07:19	11° \approx 07'10	39.29262 AU	max. Earth dist.	1302 Feb 06 j 11:38	22° \approx 28'48	41.28525 AU
retrograde	1294 May 06 j 09:32	12° \approx 57'34		retrograde	1302 May 17 j 16:39	24° \approx 14'01	
min. Earth dist.	1294 Jul 25 j 02:42	11° \approx 51'24	37.44495 AU	min. Earth dist.	1302 Aug 05 j 18:33	23° \approx 09'40	39.44704 AU
opposition	1294 Jul 28 j 04:58	11° \approx 47'17	-9°-17'-19	opposition	1302 Aug 08 j 20:55	23° \approx 05'41	-12°-1'-30
direct	1294 Oct 17 j 05:00	10° \approx 38'00		direct	1302 Oct 28 j 20:18	21° \approx 58'33	
conjunction	1295 Jan 24 j 22:28	12° \approx 30'01	-9°00'00	conjunction	1303 Feb 05 j 00:30	23° \approx 44'44	-11°-35'-23
minimum elong	1295 Jan 24 j 22:15	12° \approx 30'00	9°00'00	minimum elong	1303 Feb 05 j 00:18	23° \approx 44'43	11°35'23
max. Earth dist.	1295 Jan 27 j 23:44	12° \approx 35'24	39.54869 AU	max. Earth dist.	1303 Feb 08 j 02:58	23° \approx 49'57	41.52554 AU
retrograde	1295 May 08 j 04:23	14° \approx 25'10		retrograde	1303 May 19 j 07:08	25° \approx 34'28	
min. Earth dist.	1295 Jul 26 j 20:47	13° \approx 19'17	37.70276 AU	min. Earth dist.	1303 Aug 07 j 10:36	24° \approx 30'16	39.68896 AU
opposition	1295 Jul 29 j 23:27	13° \approx 15'10	-9°-40'-5	opposition	1303 Aug 10 j 12:14	24° \approx 26'20	-12°-19'-13
direct	1295 Oct 18 j 21:34	12° \approx 06'13		direct	1303 Oct 30 j 11:11	23° \approx 19'27	
conjunction	1296 Jan 26 j 15:00	13° \approx 57'28	-9°-21'-30	conjunction	1304 Feb 06 j 14:14	25° \approx 04'59	-11°-52'-10
minimum elong	1296 Jan 26 j 14:47	13° \approx 57'27	9°21'31	minimum elong	1304 Feb 06 j 14:02	25° \approx 04'58	11°52'11
max. Earth dist.	1296 Jan 29 j 17:26	14° \approx 02'55	39.80367 AU	max. Earth dist.	1304 Feb 09 j 16:01	25° \approx 10'07	41.76494 AU
	1296 Mar 04 j 08:09	15° \approx		retrograde	1304 May 19 j 21:13	26° \approx 54'05	
retrograde	1296 May 08 j 21:49	15° \approx 51'55		min. Earth dist.	1304 Aug 08 j 00:11	25° \approx 50'10	39.92995 AU
	1296 Jul 17 j 02:25	15° \approx		opposition	1304 Aug 11 j 02:57	25° \approx 46'11	-12°-36'-18
min. Earth dist.	1296 Jul 27 j 15:16	14° \approx 46'17	37.95901 AU	direct	1304 Oct 31 j 01:11	24° \approx 39'31	
opposition	1296 Jul 30 j 17:19	14° \approx 42'13	-10°-2'-11				
direct	1296 Oct 19 j 14:51	13° \approx 33'35		conjunction	1305 Feb 07 j 03:41	26° \approx 24'26	-12°-8'-22
	1297 Jan 13 j 09:06	15° \approx		minimum elong	1305 Feb 07 j 03:29	26° \approx 24'25	12°08'23
conjunction	1297 Jan 27 j 07:05	15° \approx 24'06	-9°-42'-23	max. Earth dist.	1305 Feb 10 j 05:57	26° \approx 29'35	42.00326 AU
minimum elong	1297 Jan 27 j 06:52	15° \approx 24'05	9°42'24	retrograde	1305 May 21 j 08:39	28° \approx 12'57	
max. Earth dist.	1297 Jan 30 j 08:24	15° \approx 29'26	40.05680 AU	min. Earth dist.	1305 Aug 09 j 15:39	27° \approx 09'12	40.16979 AU
retrograde	1297 May 10 j 16:29	17° \approx 17'51		opposition	1305 Aug 12 j 17:36	27° \approx 05'16	-12°-52'-47
min. Earth dist.	1297 Jul 29 j 07:58	16° \approx 12'31	38.21317 AU	direct	1305 Nov 01 j 17:36	25° \approx 58'52	
opposition	1297 Aug 01 j 10:52	16° \approx 08'26	-10°-23'-38				
direct	1297 Oct 21 j 06:41	15° \approx 00'05		conjunction	1306 Feb 08 j 16:48	27° \approx 43'10	-12°-24'-1
conjunction	1298 Jan 28 j 22:52	16° \approx 49'52	-10°-2'-41	minimum elong	1306 Feb 08 j 16:36	27° \approx 43'09	12°24'02
minimum elong	1298 Jan 28 j 22:40	16° \approx 49'51	10°02'43	max. Earth dist.	1306 Feb 11 j 19:21	27° \approx 48'18	42.24038 AU
max. Earth dist.	1298 Feb 01 j 00:57	16° \approx 55'13	40.30744 AU	retrograde	1306 May 22 j 20:02	29° \approx 31'07	
retrograde	1298 May 12 j 06:29	18° \approx 42'57		min. Earth dist.	1306 Aug 11 j 05:31	28° \approx 27'37	40.40802 AU
min. Earth dist.	1298 Jul 31 j 02:32	17° \approx 37'47	38.46467 AU	opposition	1306 Aug 14 j 07:49	28° \approx 23'40	-13°-8'-40
opposition	1298 Aug 03 j 04:11	17° \approx 33'46	-10°-44'-27	direct	1306 Nov 03 j 09:44	27° \approx 17'32	
direct	1298 Oct 23 j 01:12	16° \approx 25'42		conjunction	1307 Feb 10 j 05:40	29° \approx 01'14	-12°-39'-6
conjunction	1299 Jan 30 j 14:24	18° \approx 14'45	-10°-22'-24	minimum elong	1307 Feb 10 j 05:29	29° \approx 01'14	12°39'07
minimum elong	1299 Jan 30 j 14:11	18° \approx 14'44	10°22'24	max. Earth dist.	1307 Feb 13 j 07:31	29° \approx 06'18	42.47569 AU
max. Earth dist.	1299 Feb 02 j 15:51	18° \approx 20'01	40.55546 AU	retrograde	1307 Mar 20 j 01:07	0° \approx	
retrograde	1299 May 13 j 19:17	20° \approx 07'08			1307 May 24 j 11:11	0° \approx 48'39	
min. Earth dist.	1299 Aug 01 j 18:35	19° \approx 02'13	38.71342 AU	min. Earth dist.	1307 Aug 01 j 01:25	30° \approx	
opposition	1299 Aug 04 j 20:58	18° \approx 58'11	-11°-4'-39	opposition	1307 Aug 12 j 19:35	29° \approx 45'22	40.64437 AU
direct	1299 Oct 24 j 20:46	17° \approx 50'22		direct	1307 Aug 15 j 21:50	29° \approx 41'27	-13°-23'-59
conjunction	1300 Feb 01 j 05:25	19° \approx 38'41	-10°-41'-31		1307 Nov 04 j 21:56	28° \approx 35'34	
minimum elong	1300 Feb 01 j 05:13	19° \approx 38'40	10°41'33	conjunction	1308 Jan 31 j 06:57	0° \approx	
max. Earth dist.	1300 Feb 04 j 06:47	19° \approx 43'55	40.80073 AU	minimum elong	1308 Feb 11 j 18:28	0° \approx 18'42	-12°-53'-39
retrograde	1300 May 14 j 10:11	21° \approx 30'23		max. Earth dist.	1308 Feb 11 j 18:16	0° \approx 18'41	12°53'41
min. Earth dist.	1300 Aug 02 j 11:40	20° \approx 25'38	38.95976 AU	retrograde	1308 Feb 14 j 21:01	0° \approx 23'47	42.70874 AU
opposition	1300 Aug 05 j 13:27	20° \approx 21'38	-11°-24'-14	min. Earth dist.	1308 May 25 j 00:12	2° \approx 05'35	
direct	1300 Oct 25 j 13:51	19° \approx 14'03		opposition	1308 Aug 13 j 10:24	1° \approx 02'28	40.87790 AU
conjunction	1301 Feb 01 j 20:15	21° \approx 01'38	-11°00'-3	direct	1308 Aug 16 j 11:31	0° \approx 58'37	-13°-38'-44
minimum elong	1301 Feb 01 j 20:02	21° \approx 01'37	11°00'04		1308 Oct 12 j 15:32	30° \approx	
max. Earth dist.	1301 Feb 04 j 22:07	21° \approx 06'53	41.04384 AU	direct	1308 Nov 05 j 11:49	29° \approx 53'00	
retrograde	1301 May 15 j 23:50	22° \approx 52'40			1308 Nov 28 j 22:34	0° \approx	
min. Earth dist.	1301 Aug 04 j 03:36	21° \approx 48'06	39.20402 AU	conjunction	1309 Feb 12 j 06:59	1° \approx 35'35	-13°-7'-42
opposition	1301 Aug 07 j 05:15	21° \approx 44'08	-11°-43'-11	minimum elong	1309 Feb 12 j 06:49	1° \approx 35'34	13°07'43
direct	1301 Oct 27 j 06:49	20° \approx 36'46		max. Earth dist.	1309 Feb 15 j 08:03	1° \approx 40'32	42.93873 AU
conjunction	1302 Feb 03 j 10:31	22° \approx 23'38	-11°-18'-1	retrograde	1309 May 26 j 14:15	3° \approx 21'55	
minimum elong	1302 Feb 03 j 10:19	22° \approx 23'38	11°18'02	min. Earth dist.	1309 Aug 14 j 23:19	2° \approx 19'03	41.10809 AU
				opposition	1309 Aug 18 j 00:46	2° \approx 15'12	-13°-52'-58
				direct	1309 Nov 06 j 23:20	1° \approx 09'49	

conjunction	1310 Feb 13 j 19:22	2° 11 51'52	-13°-21'-14	retrograde	1318 Jun 06 j 15:34	14° 11 21'04	
minimum elong	1310 Feb 13 j 19:11	2° 11 51'51	13°21'15	min. Earth dist.	1318 Aug 26 j 16:10	13° 11 19'32	43.02677 AU
max. Earth dist.	1310 Feb 16 j 20:37	2° 11 56'48	43.16504 AU	opposition	1318 Aug 29 j 12:49	13° 11 16'02	-15°-38'-15
retrograde	1310 May 28 j 02:11	4° 11 37'41		direct	1318 Nov 18 j 15:49	12° 11 12'28	
min. Earth dist.	1310 Aug 16 j 14:13	3° 11 34'56	41.33437 AU				
opposition	1310 Aug 19 j 14:03	3° 11 31'11	-14°-6'-40	conjunction	1319 Feb 24 j 22:59	13° 11 49'59	-15°-1'-31
direct	1310 Nov 08 j 12:50	2° 11 26'02		minimum elong	1319 Feb 24 j 22:52	13° 11 49'59	15°01'32
				max. Earth dist.	1319 Feb 27 j 19:56	13° 11 54'27	45.05551 AU
conjunction	1311 Feb 15 j 07:27	4° 11 07'32	-13°-34'-17	retrograde	1319 Jun 08 j 04:48	15° 11 31'31	
minimum elong	1311 Feb 15 j 07:17	4° 11 07'31	13°34'18	min. Earth dist.	1319 Aug 28 j 03:08	14° 11 30'10	43.22693 AU
max. Earth dist.	1311 Feb 18 j 07:51	4° 11 12'24	43.38743 AU	opposition	1319 Aug 30 j 23:37	14° 11 26'41	-15°-47'-29
retrograde	1311 May 29 j 12:12	5° 11 52'50		direct	1319 Nov 20 j 00:35	13° 11 23'19	
min. Earth dist.	1311 Aug 18 j 02:56	4° 11 50'16	41.55646 AU				
opposition	1311 Aug 21 j 02:53	4° 11 46'32	-14°-19'-52	conjunction	1320 Feb 26 j 09:10	15° 11 00'25	-15°-10'-20
direct	1311 Nov 10 j 03:31	3° 11 41'35		minimum elong	1320 Feb 26 j 09:04	15° 11 00'25	15°10'20
				max. Earth dist.	1320 Feb 29 j 06:37	15° 11 04'54	45.25258 AU
conjunction	1312 Feb 16 j 19:16	5° 11 22'32	-13°-46'-52	retrograde	1320 Jun 08 j 16:50	16° 11 41'32	
minimum elong	1312 Feb 16 j 19:06	5° 11 22'32	13°46'52	min. Earth dist.	1320 Aug 28 j 15:14	15° 11 40'17	43.42360 AU
max. Earth dist.	1312 Feb 19 j 18:37	5° 11 27'19	43.60566 AU	opposition	1320 Aug 31 j 10:03	15° 11 36'54	-15°-56'-17
retrograde	1312 May 30 j 00:01	7° 11 07'20		direct	1320 Nov 20 j 09:26	14° 11 33'44	
min. Earth dist.	1312 Aug 18 j 16:30	6° 11 04'53	41.77469 AU				
opposition	1312 Aug 21 j 15:24	6° 11 01'13	-14°-32'-35	conjunction	1321 Feb 26 j 19:08	16° 11 10'25	-15°-18'-43
direct	1312 Nov 10 j 16:47	4° 11 56'28		minimum elong	1321 Feb 26 j 19:01	16° 11 10'25	15°18'44
				max. Earth dist.	1321 Mar 01 j 15:04	16° 11 14'47	45.44600 AU
conjunction	1313 Feb 17 j 06:56	6° 11 36'52	-13°-58'-58	retrograde	1321 Jun 10 j 03:07	17° 11 51'07	
minimum elong	1313 Feb 17 j 06:47	6° 11 36'52	13°58'59	min. Earth dist.	1321 Aug 30 j 01:21	16° 11 50'03	43.61624 AU
max. Earth dist.	1313 Feb 20 j 06:42	6° 11 41'39	43.82031 AU	opposition	1321 Sep 01 j 20:19	16° 11 46'40	-16°-4'-39
retrograde	1313 May 31 j 11:55	8° 11 21'09		direct	1321 Nov 21 j 18:23	15° 11 43'41	
min. Earth dist.	1313 Aug 20 j 05:31	7° 11 18'50	41.98940 AU				
opposition	1313 Aug 23 j 03:37	7° 11 15'12	-14°-44'-47	conjunction	1322 Feb 28 j 04:48	17° 11 19'58	-15°-26'-43
direct	1313 Nov 12 j 05:13	6° 11 10'39		minimum elong	1322 Feb 28 j 04:43	17° 11 19'57	15°26'44
				max. Earth dist.	1322 Mar 03 j 00:00	17° 11 24'15	45.63500 AU
conjunction	1314 Feb 18 j 18:01	7° 11 50'32	-14°-10'-35	retrograde	1322 Jun 11 j 10:48	19° 11 00'15	
minimum elong	1314 Feb 18 j 17:52	7° 11 50'31	14°10'36	min. Earth dist.	1322 Aug 31 j 13:27	17° 11 59'15	43.80429 AU
max. Earth dist.	1314 Feb 21 j 16:26	7° 11 55'11	44.03184 AU	opposition	1322 Sep 03 j 06:38	17° 11 55'58	-16°-12'-36
retrograde	1314 Jun 02 j 01:41	9° 11 34'18		direct	1322 Nov 23 j 06:29	16° 11 53'09	
min. Earth dist.	1314 Aug 21 j 17:02	8° 11 32'10	42.20141 AU				
opposition	1314 Aug 24 j 15:37	8° 11 28'32	-14°-56'-29	conjunction	1323 Mar 01 j 14:35	18° 11 29'01	-15°-34'-19
direct	1314 Nov 13 j 14:47	7° 11 24'10		minimum elong	1323 Mar 01 j 14:29	18° 11 29'00	15°34'20
				max. Earth dist.	1323 Mar 04 j 09:15	18° 11 33'16	45.81940 AU
conjunction	1315 Feb 20 j 05:06	9° 11 03'32	-14°-21'-43	retrograde	1323 Jun 12 j 17:34	20° 11 08'53	
minimum elong	1315 Feb 20 j 04:58	9° 11 03'32	14°21'45	min. Earth dist.	1323 Sep 01 j 23:57	19° 11 08'00	43.98741 AU
max. Earth dist.	1315 Feb 23 j 04:12	9° 11 08'13	44.24089 AU	opposition	1323 Sep 04 j 16:28	19° 11 04'45	-16°-20'-10
retrograde	1315 Jun 03 j 11:49	10° 11 46'50		direct	1323 Nov 24 j 19:13	18° 11 02'05	
min. Earth dist.	1315 Aug 23 j 06:07	9° 11 44'47	42.41106 AU				
opposition	1315 Aug 26 j 03:20	9° 11 41'14	-15°-7'-40	conjunction	1324 Mar 01 j 23:59	19° 11 37'31	-15°-41'-33
direct	1315 Nov 15 j 02:39	8° 11 37'03		minimum elong	1324 Mar 01 j 23:55	19° 11 37'31	15°41'34
				max. Earth dist.	1324 Mar 04 j 16:49	19° 11 41'38	45.99896 AU
conjunction	1316 Feb 21 j 15:56	10° 11 15'56	-14°-32'-22	retrograde	1324 Jun 13 j 04:09	21° 11 16'59	
minimum elong	1316 Feb 21 j 15:48	10° 11 15'56	14°32'23	min. Earth dist.	1324 Sep 02 j 10:26	20° 11 16'10	44.16591 AU
max. Earth dist.	1316 Feb 24 j 14:16	10° 11 20'33	44.44789 AU	opposition	1324 Sep 05 j 02:12	20° 11 12'58	-16°-27'-20
retrograde	1316 Jun 03 j 20:45	11° 11 58'45		direct	1324 Nov 25 j 04:35	19° 11 10'26	
min. Earth dist.	1316 Aug 23 j 16:50	10° 11 56'55	42.61855 AU				
opposition	1316 Aug 26 j 14:42	10° 11 53'20	-15°-18'-21	conjunction	1325 Mar 03 j 09:16	20° 11 45'27	-15°-48'-23
direct	1316 Nov 15 j 15:04	9° 11 49'21		minimum elong	1325 Mar 03 j 09:11	20° 11 45'27	15°48'24
				max. Earth dist.	1325 Mar 06 j 02:16	20° 11 49'33	46.17409 AU
conjunction	1317 Feb 22 j 02:29	11° 11 27'47	-14°-42'-33	retrograde	1325 Jun 14 j 13:19	22° 11 24'30	
minimum elong	1317 Feb 22 j 02:21	11° 11 27'47	14°42'34	min. Earth dist.	1325 Sep 03 j 21:20	21° 11 23'44	44.34013 AU
max. Earth dist.	1317 Feb 25 j 00:30	11° 11 32'22	44.65267 AU	opposition	1325 Sep 06 j 11:34	21° 11 20'37	-16°-34'-6
retrograde	1317 Jun 05 j 06:26	13° 11 10'09		direct	1325 Nov 26 j 14:36	20° 11 18'12	
min. Earth dist.	1317 Aug 25 j 04:58	12° 11 08'27	42.82389 AU				
opposition	1317 Aug 28 j 01:52	12° 11 04'56	-15°-28'-33	conjunction	1326 Mar 04 j 18:14	21° 11 52'48	-15°-54'-50
direct	1317 Nov 17 j 03:10	11° 11 01'09		minimum elong	1326 Mar 04 j 18:11	21° 11 52'48	15°54'52
				max. Earth dist.	1326 Mar 07 j 09:46	21° 11 56'48	46.34553 AU
conjunction	1318 Feb 23 j 12:57	12° 11 39'07	-14°-52'-15	retrograde	1326 Jun 15 j 23:25	23° 11 31'26	
minimum elong	1318 Feb 23 j 12:50	12° 11 39'07	14°52'16	min. Earth dist.	1326 Sep 05 j 06:13	22° 11 30'48	44.51099 AU
max. Earth dist.	1318 Feb 26 j 11:15	12° 11 43'42	44.85538 AU	opposition	1326 Sep 07 j 20:45	22° 11 27'41	-16°-40'-28

direct	1326 Nov 27 j 21:53	21° ✕ 25'23		min. Earth dist.	1334 Sep 14 j 07:52	1° Υ 12'47	45.77318 AU
				opposition	1334 Sep 16 j 15:55	1° Υ 10'02	-17°-17'-3
conjunction	1327 Mar 06 j 02:58	22° ✕ 59'36	-16°00'-54	direct	1334 Dec 06 j 18:50	0° Υ 09'00	
minimum elong	1327 Mar 06 j 02:53	22° ✕ 59'36	16°00'55				
max. Earth dist.	1327 Mar 08 j 18:22	23° ✕ 03'34	46.51378 AU	conjunction	1335 Mar 14 j 20:28	1° Υ 40'41	-16°-35'-44
retrograde	1327 Jun 17 j 07:44	24° ✕ 37'51		minimum elong	1335 Mar 14 j 20:29	1° Υ 40'41	16°35'44
min. Earth dist.	1327 Sep 06 j 16:51	23° ✕ 37'15	44.67892 AU	max. Earth dist.	1335 Mar 17 j 06:29	1° Υ 44'13	47.75637 AU
opposition	1327 Sep 09 j 05:51	23° ✕ 34'13	-16°-46'-25	retrograde	1335 Jun 25 j 22:11	3° Υ 16'24	
direct	1327 Nov 29 j 06:34	22° ✕ 32'04		min. Earth dist.	1335 Sep 15 j 17:03	2° Υ 16'41	45.91311 AU
				opposition	1335 Sep 17 j 23:41	2° Υ 14'01	-17°-20'-2
conjunction	1328 Mar 06 j 11:43	24° ✕ 05'55	-16°-6'-34	direct	1335 Dec 08 j 04:22	1° Υ 13'06	
minimum elong	1328 Mar 06 j 11:41	24° ✕ 05'54	16°06'35				
max. Earth dist.	1328 Mar 09 j 02:52	24° ✕ 09'51	46.67945 AU	conjunction	1336 Mar 15 j 04:12	2° Υ 44'29	-16°-38'-33
retrograde	1328 Jun 17 j 13:27	25° ✕ 43'47		minimum elong	1336 Mar 15 j 04:11	2° Υ 44'29	16°38'34
min. Earth dist.	1328 Sep 07 j 01:21	24° ✕ 43'20	44.84417 AU	max. Earth dist.	1336 Mar 17 j 11:59	2° Υ 47'52	47.89337 AU
opposition	1328 Sep 09 j 14:26	24° ✕ 40'18	-16°-51'-57	retrograde	1336 Jun 26 j 08:37	4° Υ 19'53	
direct	1328 Nov 29 j 17:45	23° ✕ 38'17		min. Earth dist.	1336 Sep 16 j 00:55	3° Υ 20'16	46.04814 AU
				opposition	1336 Sep 18 j 07:05	3° Υ 17'37	-17°-22'-41
conjunction	1329 Mar 07 j 20:07	25° ✕ 11'47	-16°-11'-50	direct	1336 Dec 08 j 09:27	2° Υ 16'48	
minimum elong	1329 Mar 07 j 20:04	25° ✕ 11'46	16°11'50				
max. Earth dist.	1329 Mar 10 j 09:55	25° ✕ 15'37	46.84258 AU	conjunction	1337 Mar 16 j 11:45	3° Υ 47'54	-16°-41'-4
retrograde	1329 Jun 18 j 22:24	26° ✕ 49'19		minimum elong	1337 Mar 16 j 11:47	3° Υ 47'54	16°41'05
min. Earth dist.	1329 Sep 08 j 10:38	25° ✕ 48'58	45.00704 AU	max. Earth dist.	1337 Mar 18 j 19:10	3° Υ 51'15	48.02557 AU
opposition	1329 Sep 10 j 23:08	25° ✕ 45'58	-16°-57'-5	retrograde	1337 Jun 27 j 17:52	5° Υ 22'59	
direct	1329 Dec 01 j 02:49	24° ✕ 44'07		min. Earth dist.	1337 Sep 17 j 10:22	4° Υ 23'21	46.17863 AU
				opposition	1337 Sep 19 j 14:34	4° Υ 20'49	-17°-25'-1
conjunction	1330 Mar 09 j 04:22	26° ✕ 17'17	-16°-16'-43	direct	1337 Dec 09 j 14:52	3° Υ 20'06	
minimum elong	1330 Mar 09 j 04:20	26° ✕ 17'17	16°16'45				
max. Earth dist.	1330 Mar 11 j 18:51	26° ✕ 21'09	47.00330 AU	conjunction	1338 Mar 17 j 19:00	4° Υ 50'53	-16°-43'-16
retrograde	1330 Jun 20 j 07:43	27° ✕ 54'30		minimum elong	1338 Mar 17 j 19:00	4° Υ 50'53	16°43'17
min. Earth dist.	1330 Sep 09 j 20:14	26° ✕ 54'15	45.16720 AU	max. Earth dist.	1338 Mar 20 j 01:33	4° Υ 54'10	48.15374 AU
opposition	1330 Sep 12 j 07:39	26° ✕ 51'19	-17°-1'-49	retrograde	1338 Jun 28 j 22:22	6° Υ 25'39	
direct	1330 Dec 02 j 11:03	25° ✕ 49'38		min. Earth dist.	1338 Sep 18 j 17:27	5° Υ 26'07	46.30524 AU
				opposition	1338 Sep 20 j 21:43	5° Υ 23'35	-17°-27'-1
conjunction	1331 Mar 10 j 12:32	27° ✕ 22'29	-16°-21'-13	direct	1338 Dec 10 j 23:12	4° Υ 22'57	
minimum elong	1331 Mar 10 j 12:31	27° ✕ 22'29	16°21'14				
max. Earth dist.	1331 Mar 13 j 01:30	27° ✕ 26'14	47.16139 AU	conjunction	1339 Mar 19 j 02:10	5° Υ 53'26	-16°-45'-9
retrograde	1331 Jun 21 j 18:29	28° ✕ 59'23		minimum elong	1339 Mar 19 j 02:12	5° Υ 53'26	16°45'10
min. Earth dist.	1331 Sep 11 j 04:12	27° ✕ 59'19	45.32454 AU	max. Earth dist.	1339 Mar 21 j 07:22	5° Υ 56'38	48.27828 AU
opposition	1331 Sep 13 j 15:51	27° ✕ 56'23	-17°-6'-10	retrograde	1339 Jun 30 j 03:18	7° Υ 27'55	
direct	1331 Dec 03 j 16:33	26° ✕ 54'52		min. Earth dist.	1339 Sep 20 j 01:47	6° Υ 28'24	46.42861 AU
				opposition	1339 Sep 22 j 04:46	6° Υ 25'56	-17°-28'-41
conjunction	1332 Mar 10 j 20:39	28° ✕ 27'25	-16°-25'-21	direct	1339 Dec 12 j 08:24	5° Υ 25'23	
minimum elong	1332 Mar 10 j 20:38	28° ✕ 27'25	16°25'23				
max. Earth dist.	1332 Mar 13 j 09:21	28° ✕ 31'08	47.31630 AU	conjunction	1340 Mar 19 j 09:23	6° Υ 55'36	-16°-46'-41
	1332 Jun 02 j 22:18	0° Υ		minimum elong	1340 Mar 19 j 09:24	6° Υ 55'36	16°46'42
retrograde	1332 Jun 22 j 01:47	0° Υ 04'01		max. Earth dist.	1340 Mar 21 j 14:52	6° Υ 58'49	48.39983 AU
	1332 Jul 11 j 06:00	30° ℞		retrograde	1340 Jun 30 j 08:42	8° Υ 29'48	
min. Earth dist.	1332 Sep 11 j 14:22	29° ✕ 04'01	45.47838 AU	min. Earth dist.	1340 Sep 20 j 09:29	7° Υ 30'20	46.54890 AU
opposition	1332 Sep 14 j 00:04	29° ✕ 01'11	-17°-10'-8	opposition	1340 Sep 22 j 11:37	7° Υ 27'54	-17°-30'00
direct	1332 Dec 04 j 00:35	27° ✕ 59'50		direct	1340 Dec 12 j 18:00	6° Υ 27'28	
conjunction	1333 Mar 12 j 04:42	29° ✕ 32'06	-16°-29'-8	conjunction	1341 Mar 20 j 16:13	7° Υ 57'25	-16°-47'-54
minimum elong	1333 Mar 12 j 04:41	29° ✕ 32'06	16°29'09	minimum elong	1341 Mar 20 j 16:16	7° Υ 57'25	16°47'55
max. Earth dist.	1333 Mar 14 j 16:38	29° ✕ 35'47	47.46754 AU	max. Earth dist.	1341 Mar 22 j 20:02	8° Υ 00'30	48.51854 AU
	1333 Mar 31 j 10:20	0° Υ		retrograde	1341 Jul 01 j 17:43	9° Υ 31'20	
retrograde	1333 Jun 23 j 06:55	1° Υ 08'24		min. Earth dist.	1341 Sep 21 j 16:09	8° Υ 31'59	46.66646 AU
min. Earth dist.	1333 Sep 12 j 22:30	0° Υ 08'33	45.62806 AU	opposition	1341 Sep 23 j 18:20	8° Υ 29'34	-17°-30'-59
opposition	1333 Sep 15 j 07:57	0° Υ 05'44	-17°-13'-46	direct	1341 Dec 13 j 23:19	7° Υ 29'13	
	1333 Sep 20 j 05:11	30° ℞					
direct	1333 Dec 05 j 10:13	29° ✕ 04'33		conjunction	1342 Mar 21 j 23:06	8° Υ 58'55	-16°-48'-47
	1334 Feb 15 j 22:17	0° Υ		minimum elong	1342 Mar 21 j 23:08	8° Υ 58'55	16°48'48
				max. Earth dist.	1342 Mar 24 j 02:50	9° Υ 02'00	48.63450 AU
conjunction	1334 Mar 13 j 12:34	0° Υ 36'32	-16°-32'-35	retrograde	1342 Jul 03 j 01:25	10° Υ 32'35	
minimum elong	1334 Mar 13 j 12:33	0° Υ 36'32	16°32'37	min. Earth dist.	1342 Sep 23 j 00:33	9° Υ 33'16	46.78115 AU
max. Earth dist.	1334 Mar 15 j 22:46	0° Υ 40'06	47.61435 AU	opposition	1342 Sep 25 j 01:03	9° Υ 30'56	-17°-31'-38
retrograde	1334 Jun 24 j 15:03	2° Υ 12'33		direct	1342 Dec 15 j 04:47	8° Υ 30'42	

conjunction	1343 Mar 23 j 05:53	10°V00'10	-16°-49'-21	retrograde	1351 Jul 12 j 08:48	19°V34'35	
minimum elong	1343 Mar 23 j 05:56	10°V00'10	16°49'23	min. Earth dist.	1351 Oct 02 j 16:56	18°V35'42	47.62085 AU
max. Earth dist.	1343 Mar 25 j 08:52	10°V03'12	48.74769 AU	opposition	1351 Oct 04 j 08:09	18°V33'50	-17°-24'-20
retrograde	1343 Jul 04 j 07:29	11°V33'35		direct	1351 Dec 24 j 14:58	17°V34'26	
min. Earth dist.	1343 Sep 24 j 07:01	10°V34'24	46.89271 AU				
opposition	1343 Sep 26 j 07:32	10°V32'03	-17°-31'-57	conjunction	1352 Mar 31 j 16:00	19°V02'07	-16°-41'-51
direct	1343 Dec 16 j 10:38	9°V31'57		minimum elong	1352 Mar 31 j 16:07	19°V02'07	16°41'52
				max. Earth dist.	1352 Apr 02 j 08:54	19°V04'29	49.56869 AU
conjunction	1344 Mar 23 j 12:36	11°V01'12	-16°-49'-36	retrograde	1352 Jul 12 j 15:49	20°V33'38	
minimum elong	1344 Mar 23 j 12:39	11°V01'13	16°49'37	min. Earth dist.	1352 Oct 03 j 00:11	19°V34'44	47.69240 AU
max. Earth dist.	1344 Mar 25 j 14:06	11°V04'09	48.85743 AU	opposition	1352 Oct 04 j 13:39	19°V32'57	-17°-22'-8
retrograde	1344 Jul 04 j 13:33	12°V34'24		direct	1352 Dec 24 j 19:53	18°V33'37	
min. Earth dist.	1344 Sep 24 j 14:59	11°V35'15	47.00067 AU				
opposition	1344 Sep 26 j 13:55	11°V33'00	-17°-31'-58	conjunction	1353 Apr 01 j 21:59	20°V01'08	-16°-39'-40
direct	1344 Dec 16 j 17:18	10°V33'01		minimum elong	1353 Apr 01 j 22:05	20°V01'08	16°39'40
				max. Earth dist.	1353 Apr 03 j 13:54	20°V03'27	49.63917 AU
conjunction	1345 Mar 24 j 19:23	12°V02'04	-16°-49'-34	retrograde	1353 Jul 13 j 21:57	21°V32'27	
minimum elong	1345 Mar 24 j 19:26	12°V02'04	16°49'36	min. Earth dist.	1353 Oct 04 j 05:25	20°V33'39	47.76093 AU
max. Earth dist.	1345 Mar 26 j 20:46	12°V04'59	48.96332 AU	opposition	1353 Oct 05 j 19:04	20°V31'52	-17°-19'-39
retrograde	1345 Jul 05 j 18:17	13°V35'03		direct	1353 Dec 25 j 23:31	19°V32'36	
min. Earth dist.	1345 Sep 25 j 22:27	12°V35'59	47.10425 AU				
opposition	1345 Sep 27 j 20:14	12°V33'47	-17°-31'-41	conjunction	1354 Apr 03 j 03:41	20°V59'58	-16°-37'-11
direct	1345 Dec 18 j 01:56	11°V33'55		minimum elong	1354 Apr 03 j 03:48	20°V59'58	16°37'12
				max. Earth dist.	1354 Apr 04 j 18:21	21°V02'12	49.70661 AU
conjunction	1346 Mar 26 j 01:52	13°V02'46	-16°-49'-15	retrograde	1354 Jul 15 j 02:55	22°V31'07	
minimum elong	1346 Mar 26 j 01:57	13°V02'46	16°49'15	min. Earth dist.	1354 Oct 05 j 12:29	21°V32'19	47.82648 AU
max. Earth dist.	1346 Mar 28 j 01:03	13°V05'33	49.06464 AU	opposition	1354 Oct 07 j 00:37	21°V30'37	-17°-16'-52
retrograde	1346 Jul 07 j 02:58	14°V35'33		direct	1354 Dec 27 j 04:29	20°V31'25	
min. Earth dist.	1346 Sep 27 j 05:30	13°V36'33	47.20300 AU				
opposition	1346 Sep 29 j 02:34	13°V34'23	-17°-31'-7	conjunction	1355 Apr 04 j 09:38	21°V58'39	-16°-34'-25
direct	1346 Dec 19 j 07:15	12°V34'38		minimum elong	1355 Apr 04 j 09:45	21°V58'39	16°34'26
				max. Earth dist.	1355 Apr 06 j 00:19	22°V00'53	49.77110 AU
conjunction	1347 Mar 27 j 08:35	14°V03'17	-16°-48'-40	retrograde	1355 Jul 16 j 05:53	23°V29'39	
minimum elong	1347 Mar 27 j 08:38	14°V03'17	16°48'42	min. Earth dist.	1355 Oct 06 j 18:18	22°V30'55	47.88876 AU
max. Earth dist.	1347 Mar 29 j 07:07	14°V06'01	49.16073 AU	opposition	1355 Oct 08 j 05:47	22°V29'14	-17°-13'-47
retrograde	1347 Jul 08 j 11:30	15°V35'51		direct	1355 Dec 28 j 12:34	21°V30'07	
min. Earth dist.	1347 Sep 28 j 13:59	14°V36'51	47.29630 AU				
opposition	1347 Sep 30 j 08:45	14°V34'48	-17°-30'-18	conjunction	1356 Apr 04 j 15:25	22°V57'13	-16°-31'-23
direct	1347 Dec 20 j 11:53	13°V35'08		minimum elong	1356 Apr 04 j 15:31	22°V57'13	16°31'25
				max. Earth dist.	1356 Apr 06 j 04:06	22°V59'20	49.83224 AU
conjunction	1348 Mar 27 j 15:12	15°V03'35	-16°-47'-50	retrograde	1356 Jul 16 j 12:19	24°V28'05	
minimum elong	1348 Mar 27 j 15:17	15°V03'36	16°47'51	min. Earth dist.	1356 Oct 07 j 00:21	23°V29'24	47.94750 AU
max. Earth dist.	1348 Mar 29 j 12:09	15°V06'14	49.25156 AU	opposition	1356 Oct 08 j 11:02	23°V27'45	-17°-10'-27
retrograde	1348 Jul 08 j 17:25	16°V35'56		direct	1356 Dec 28 j 18:27	22°V28'43	
min. Earth dist.	1348 Sep 28 j 20:15	15°V37'00	47.38422 AU				
opposition	1348 Sep 30 j 14:45	15°V34'58	-17°-29'-13	conjunction	1357 Apr 05 j 21:10	23°V55'42	-16°-28'-6
direct	1348 Dec 20 j 17:00	14°V35'22		minimum elong	1357 Apr 05 j 21:17	23°V55'42	16°28'06
				max. Earth dist.	1357 Apr 07 j 09:31	23°V57'47	49.88941 AU
conjunction	1349 Mar 28 j 21:27	16°V03'38	-16°-46'-45	retrograde	1357 Jul 17 j 20:13	25°V26'25	
minimum elong	1349 Mar 28 j 21:31	16°V03'38	16°46'46	min. Earth dist.	1357 Oct 08 j 07:32	24°V27'44	48.00192 AU
max. Earth dist.	1349 Mar 30 j 16:38	16°V06'09	49.33710 AU	opposition	1357 Oct 09 j 16:15	24°V26'11	-17°-6'-51
retrograde	1349 Jul 09 j 21:43	17°V35'45		direct	1357 Dec 29 j 22:48	23°V27'14	
min. Earth dist.	1349 Sep 30 j 04:10	16°V36'48	47.46723 AU				
opposition	1349 Oct 01 j 20:44	16°V34'52	-17°-27'-52	conjunction	1358 Apr 07 j 02:59	24°V54'05	-16°-24'-33
direct	1349 Dec 22 j 00:46	15°V35'20		minimum elong	1358 Apr 07 j 03:06	24°V54'05	16°24'35
				max. Earth dist.	1358 Apr 08 j 13:48	24°V56'05	49.94219 AU
conjunction	1350 Mar 30 j 03:48	17°V03'23	-16°-45'-23	retrograde	1358 Jul 19 j 03:52	26°V24'40	
minimum elong	1350 Mar 30 j 03:54	17°V03'24	16°45'25	opposition	1358 Oct 10 j 21:17	25°V24'31	-17°-3'00
max. Earth dist.	1350 Mar 31 j 22:56	17°V05'55	49.41814 AU	min. Earth dist.	1358 Oct 09 j 12:55	25°V26'02	48.05155 AU
retrograde	1350 Jul 11 j 00:59	18°V35'18		direct	1358 Dec 31 j 01:10	24°V25'36	
min. Earth dist.	1350 Oct 01 j 10:47	17°V36'22	47.54587 AU				
opposition	1350 Oct 03 j 02:29	17°V34'29	-17°-26'-15	conjunction	1359 Apr 08 j 08:46	25°V52'21	-16°-20'-47
direct	1350 Dec 23 j 09:57	16°V35'01		minimum elong	1359 Apr 08 j 08:54	25°V52'21	16°20'47
				max. Earth dist.	1359 Apr 09 j 17:40	25°V54'14	49.98981 AU
conjunction	1351 Mar 31 j 09:52	18°V02'52	-16°-43'-46	retrograde	1359 Jul 20 j 08:26	27°V22'46	
minimum elong	1351 Mar 31 j 09:56	18°V02'53	16°43'47	min. Earth dist.	1359 Oct 10 j 20:19	26°V24'06	48.09587 AU
max. Earth dist.	1351 Apr 02 j 02:56	18°V05'16	49.49520 AU	opposition	1359 Oct 12 j 02:30	26°V22'41	-16°-58'-55

direct	1360 Jan 01 j 06:54	25°Υ23'49		opposition	1367 Oct 19 j 16:15	4°♄00'51	-16°-17'-20
				min. Earth dist.	1367 Oct 18 j 18:18	4°♄01'53	48.29757 AU
conjunction	1360 Apr 08 j 14:39	26°Υ50'25	-16°-16'-47	direct	1368 Jan 09 j 02:01	3°♄02'12	
minimum elong	1360 Apr 08 j 14:46	26°Υ50'26	16°16'48				
max. Earth dist.	1360 Apr 09 j 23:00	26°Υ52'17	50.03210 AU	conjunction	1368 Apr 16 j 09:54	4°♄28'04	-15°-35'-58
retrograde	1360 Jul 20 j 09:49	28°Υ20'42		minimum elong	1368 Apr 16 j 10:04	4°♄28'05	15°35'59
min. Earth dist.	1360 Oct 11 j 02:14	27°Υ22'01	48.13474 AU	max. Earth dist.	1368 Apr 17 j 09:34	4°♄29'25	50.22640 AU
opposition	1360 Oct 12 j 07:21	27°Υ20'38	-16°-54'-36	retrograde	1368 Jul 28 j 06:41	5°♄57'26	
direct	1361 Jan 01 j 15:17	26°Υ21'48		opposition	1368 Oct 19 j 20:35	4°♄57'44	-16°-10'-58
				min. Earth dist.	1368 Oct 18 j 22:41	4°♄58'46	48.30804 AU
conjunction	1361 Apr 09 j 20:14	27°Υ48'17	-16°-12'-33	direct	1369 Jan 09 j 03:13	3°♄59'08	
minimum elong	1361 Apr 09 j 20:23	27°Υ48'17	16°12'34				
max. Earth dist.	1361 Apr 11 j 02:10	27°Υ50'00	50.06927 AU	conjunction	1369 Apr 17 j 15:10	5°♄25'00	-15°-29'-44
retrograde	1361 Jul 21 j 15:28	29°Υ18'24		minimum elong	1369 Apr 17 j 15:20	5°♄25'00	15°29'45
min. Earth dist.	1361 Oct 12 j 08:03	28°Υ19'42	48.16880 AU	max. Earth dist.	1369 Apr 18 j 13:16	5°♄26'15	50.23594 AU
opposition	1361 Oct 13 j 12:18	28°Υ18'22	-16°-50'-3	retrograde	1369 Jul 29 j 11:54	6°♄54'19	
direct	1362 Jan 02 j 20:54	27°Υ19'33		min. Earth dist.	1369 Oct 20 j 05:25	5°♄55'37	48.31454 AU
				opposition	1369 Oct 21 j 01:11	5°♄54'41	-16°-4'-21
conjunction	1362 Apr 11 j 01:43	28°Υ45'53	-16°-8'-6	direct	1370 Jan 10 j 06:59	4°♄56'09	
minimum elong	1362 Apr 11 j 01:51	28°Υ45'54	16°08'07				
max. Earth dist.	1362 Apr 12 j 07:15	28°Υ47'35	50.10179 AU	conjunction	1370 Apr 18 j 20:31	6°♄21'59	-15°-23'-15
	1362 Jun 13 j 11:00	0°♄		minimum elong	1370 Apr 18 j 20:42	6°♄22'00	15°23'16
retrograde	1362 Jul 22 j 21:12	0°♄15'52		max. Earth dist.	1370 Apr 19 j 18:16	6°♄23'13	50.24122 AU
	1362 Aug 31 j 17:41	30°♄Υ		retrograde	1370 Jul 30 j 13:25	7°♄51'16	
opposition	1362 Oct 14 j 17:11	29°Υ15'51	-16°-45'-16	min. Earth dist.	1370 Oct 21 j 10:43	6°♄52'35	48.31623 AU
min. Earth dist.	1362 Oct 13 j 14:51	29°Υ17'06	48.19846 AU	opposition	1370 Oct 22 j 05:38	6°♄51'41	-15°-57'-30
direct	1363 Jan 04 j 02:38	28°Υ17'03		direct	1371 Jan 11 j 14:34	5°♄53'11	
conjunction	1363 Apr 12 j 07:16	29°Υ43'16	-16°-3'-23	conjunction	1371 Apr 20 j 01:55	7°♄19'01	-15°-16'-34
minimum elong	1363 Apr 12 j 07:25	29°Υ43'16	16°03'24	minimum elong	1371 Apr 20 j 02:05	7°♄19'01	15°16'35
max. Earth dist.	1363 Apr 13 j 11:38	29°Υ44'53	50.13040 AU	max. Earth dist.	1371 Apr 20 j 21:01	7°♄20'06	50.24147 AU
	1363 Apr 24 j 13:52	0°♄		retrograde	1371 Jul 31 j 18:31	8°♄48'14	
retrograde	1363 Jul 24 j 03:20	1°♄13'05		opposition	1371 Oct 23 j 10:03	7°♄48'43	-15°-50'-25
opposition	1363 Oct 15 j 21:45	0°♄13'07	-16°-40'-13	min. Earth dist.	1371 Oct 22 j 16:26	7°♄49'32	48.31276 AU
min. Earth dist.	1363 Oct 14 j 19:28	0°♄14'21	48.22441 AU	direct	1372 Jan 12 j 20:11	6°♄50'13	
	1363 Oct 27 j 14:07	30°♄Υ					
direct	1364 Jan 05 j 05:43	29°Υ14'18		conjunction	1372 Apr 20 j 07:27	8°♄16'01	-15°-9'-39
	1364 Mar 12 j 19:15	0°♄		minimum elong	1372 Apr 20 j 07:38	8°♄16'02	15°09'40
				max. Earth dist.	1372 Apr 21 j 01:46	8°♄17'04	50.23631 AU
conjunction	1364 Apr 12 j 12:40	0°♄40'26	-15°-58'-25	retrograde	1372 Aug 01 j 00:15	9°♄45'12	
minimum elong	1364 Apr 12 j 12:48	0°♄40'26	15°58'26	opposition	1372 Oct 23 j 14:34	8°♄45'42	-15°-43'-8
max. Earth dist.	1364 Apr 13 j 15:30	0°♄41'58	50.15545 AU	min. Earth dist.	1372 Oct 22 j 23:00	8°♄46'26	48.30379 AU
retrograde	1364 Jul 24 j 08:41	2°♄10'07		direct	1373 Jan 13 j 01:37	7°♄47'13	
min. Earth dist.	1364 Oct 15 j 01:55	1°♄11'20	48.24712 AU				
opposition	1364 Oct 16 j 02:30	1°♄10'11	-16°-34'-54	conjunction	1373 Apr 21 j 12:40	9°♄12'59	-15°-2'-32
direct	1365 Jan 05 j 09:24	0°♄11'24		minimum elong	1373 Apr 21 j 12:50	9°♄12'59	15°02'34
				max. Earth dist.	1373 Apr 22 j 05:25	9°♄13'55	50.22600 AU
conjunction	1365 Apr 13 j 17:59	1°♄37'26	-15°-53'-12	retrograde	1373 Aug 02 j 06:52	10°♄42'05	
minimum elong	1365 Apr 13 j 18:09	1°♄37'27	15°53'13	opposition	1373 Oct 24 j 18:54	9°♄42'36	-15°-35'-38
max. Earth dist.	1365 Apr 14 j 20:56	1°♄38'58	50.17749 AU	min. Earth dist.	1373 Oct 24 j 03:42	9°♄43'19	48.28980 AU
retrograde	1365 Jul 25 j 10:59	3°♄07'01		direct	1374 Jan 14 j 04:05	8°♄44'06	
min. Earth dist.	1365 Oct 16 j 06:52	2°♄08'16	48.26677 AU				
opposition	1365 Oct 17 j 07:05	2°♄07'07	-16°-29'-19	conjunction	1374 Apr 22 j 17:57	10°♄09'50	-14°-55'-12
direct	1366 Jan 06 j 16:27	1°♄08'22		minimum elong	1374 Apr 22 j 18:09	10°♄09'51	14°55'14
				max. Earth dist.	1374 Apr 23 j 08:52	10°♄10'40	50.21081 AU
conjunction	1366 Apr 14 j 23:14	2°♄34'20	-15°-47'-43	retrograde	1374 Aug 03 j 13:09	11°♄38'52	
minimum elong	1366 Apr 14 j 23:23	2°♄34'20	15°47'44	opposition	1374 Oct 25 j 23:16	10°♄39'23	-15°-27'-54
max. Earth dist.	1366 Apr 16 j 00:18	2°♄35'46	50.19674 AU	min. Earth dist.	1374 Oct 25 j 10:07	10°♄40'00	48.27132 AU
retrograde	1366 Jul 26 j 16:14	4°♄03'50		direct	1375 Jan 15 j 06:38	9°♄40'52	
opposition	1366 Oct 18 j 11:39	3°♄03'59	-16°-23'-28				
min. Earth dist.	1366 Oct 17 j 12:06	3°♄05'06	48.28373 AU	conjunction	1375 Apr 23 j 23:20	11°♄06'34	-14°-47'-38
direct	1367 Jan 07 j 21:32	2°♄05'17		minimum elong	1375 Apr 23 j 23:30	11°♄06'34	14°47'39
				max. Earth dist.	1375 Apr 24 j 14:01	11°♄07'24	50.19148 AU
conjunction	1367 Apr 16 j 04:35	3°♄31'12	-15°-41'-58	retrograde	1375 Aug 04 j 15:10	12°♄35'32	
minimum elong	1367 Apr 16 j 04:44	3°♄31'12	15°42'00	opposition	1375 Oct 27 j 03:31	11°♄36'02	-15°-19'-56
max. Earth dist.	1367 Apr 17 j 05:29	3°♄32'36	50.21310 AU	min. Earth dist.	1375 Oct 26 j 14:56	11°♄36'38	48.24879 AU
retrograde	1367 Jul 27 j 22:47	5°♄00'38		direct	1376 Jan 16 j 13:09	10°♄37'29	

conjunction	1376 Apr 24 j 04:31	12°♄03'10	-14°-39'-50	direct	1384 Jan 24 j 01:11	18°♄10'06	
minimum elong	1376 Apr 24 j 04:43	12°♄03'11	14°39'51				
max. Earth dist.	1376 Apr 24 j 17:08	12°♄03'53	50.16839 AU	conjunction	1384 May 01 j 23:14	19°♄36'04	-13°-28'-48
retrograde	1376 Aug 04 j 18:55	13°♄32'06		minimum elong	1384 May 01 j 23:25	19°♄36'05	13°28'49
opposition	1376 Oct 27 j 07:42	12°♄32'36	-15°-11'-42	max. Earth dist.	1384 May 02 j 01:58	19°♄36'13	49.85946 AU
min. Earth dist.	1376 Oct 26 j 20:05	12°♄33'09	48.22286 AU	retrograde	1384 Aug 12 j 14:49	21°♄05'03	
direct	1377 Jan 16 j 18:35	11°♄34'02		opposition	1384 Nov 03 j 18:07	20°♄05'37	-13°-57'-5
				min. Earth dist.	1384 Nov 03 j 16:21	20°♄05'42	47.88689 AU
conjunction	1377 Apr 25 j 09:47	12°♄59'42	-14°-31'-48	direct	1385 Jan 24 j 03:59	19°♄06'56	
minimum elong	1377 Apr 25 j 09:57	12°♄59'42	14°31'48				
max. Earth dist.	1377 Apr 25 j 22:04	13°♄00'23	50.14202 AU	conjunction	1385 May 03 j 04:49	20°♄32'58	-13°-18'-56
retrograde	1377 Aug 05 j 23:19	14°♄28'36		minimum elong	1385 May 03 j 05:02	20°♄32'59	13°18'57
opposition	1377 Oct 28 j 12:01	13°♄29'05	-15°-3'-14	max. Earth dist.	1385 May 03 j 07:03	20°♄33'06	49.79998 AU
min. Earth dist.	1377 Oct 28 j 01:48	13°♄29'34	48.19373 AU	retrograde	1385 Aug 13 j 17:43	22°♄01'58	
direct	1378 Jan 18 j 00:57	12°♄30'30		opposition	1385 Nov 04 j 22:25	21°♄02'31	-13°-46'-45
				min. Earth dist.	1385 Nov 04 j 21:23	21°♄02'34	47.82338 AU
conjunction	1378 Apr 26 j 14:54	13°♄56'10	-14°-23'-30	direct	1386 Jan 25 j 10:04	20°♄03'47	
minimum elong	1378 Apr 26 j 15:06	13°♄56'11	14°23'31				
max. Earth dist.	1378 Apr 27 j 02:09	13°♄56'48	50.11278 AU	conjunction	1386 May 04 j 10:10	21°♄29'53	-13°-8'-51
	1378 Jun 18 j 01:38	15°♄		minimum elong	1386 May 04 j 10:21	21°♄29'54	13°08'51
retrograde	1378 Aug 07 j 07:05	15°♄25'02		max. Earth dist.	1386 May 04 j 09:58	21°♄29'52	49.73555 AU
	1378 Sep 27 j 00:20	15°♄		retrograde	1386 Aug 14 j 22:25	22°♄58'55	
opposition	1378 Oct 29 j 16:15	14°♄25'33	-14°-54'-30	opposition	1386 Nov 06 j 02:48	21°♄59'25	-13°-36'-10
min. Earth dist.	1378 Oct 29 j 05:59	14°♄26'01	48.16168 AU	min. Earth dist.	1386 Nov 06 j 03:06	21°♄59'25	47.75526 AU
direct	1379 Jan 19 j 02:54	13°♄26'56		direct	1387 Jan 26 j 15:05	21°♄00'38	
conjunction	1379 Apr 27 j 20:10	14°♄52'38	-14°-14'-58	conjunction	1387 May 05 j 15:47	22°♄26'48	-12°-58'-32
minimum elong	1379 Apr 27 j 20:21	14°♄52'38	14°14'58	minimum elong	1387 May 05 j 15:59	22°♄26'49	12°58'33
max. Earth dist.	1379 Apr 28 j 05:54	14°♄53'11	50.08046 AU	max. Earth dist.	1387 May 05 j 14:59	22°♄26'45	49.66665 AU
	1379 May 03 j 06:55	15°♄		retrograde	1387 Aug 16 j 02:11	23°♄55'53	
retrograde	1379 Aug 08 j 13:30	16°♄21'29		opposition	1387 Nov 07 j 07:02	22°♄56'21	-13°-25'-22
opposition	1379 Oct 30 j 20:30	15°♄22'01	-14°-45'-31	min. Earth dist.	1387 Nov 07 j 08:58	22°♄56'15	47.68294 AU
min. Earth dist.	1379 Oct 30 j 12:10	15°♄22'24	48.12655 AU	direct	1388 Jan 27 j 21:50	21°♄57'29	
	1379 Nov 19 j 20:02	15°♄					
direct	1380 Jan 20 j 05:00	14°♄23'24		conjunction	1388 May 05 j 21:18	23°♄23'44	-12°-47'-59
	1380 Mar 20 j 12:04	15°♄		minimum elong	1388 May 05 j 21:29	23°♄23'45	12°48'00
				max. Earth dist.	1388 May 05 j 19:16	23°♄23'37	49.59404 AU
conjunction	1380 Apr 28 j 01:34	15°♄49'08	-14°-6'-11	retrograde	1388 Aug 16 j 09:51	24°♄52'51	
minimum elong	1380 Apr 28 j 01:45	15°♄49'09	14°06'13	opposition	1388 Nov 07 j 11:18	23°♄53'17	-13°-14'-19
max. Earth dist.	1380 Apr 28 j 11:09	15°♄49'40	50.04500 AU	min. Earth dist.	1388 Nov 07 j 13:21	23°♄53'12	47.60716 AU
retrograde	1380 Aug 08 j 15:54	17°♄18'00		direct	1389 Jan 28 j 00:09	22°♄54'22	
opposition	1380 Oct 31 j 00:44	16°♄18'32	-14°-36'-17				
min. Earth dist.	1380 Oct 30 j 16:54	16°♄18'54	48.08791 AU	conjunction	1389 May 07 j 02:38	24°♄20'43	-12°-37'-12
direct	1381 Jan 20 j 11:25	15°♄19'56		minimum elong	1389 May 07 j 02:50	24°♄20'43	12°37'13
				max. Earth dist.	1389 May 06 j 23:07	24°♄20'31	49.51803 AU
conjunction	1381 Apr 29 j 06:41	16°♄45'43	-13°-57'-10	retrograde	1389 Aug 17 j 17:34	25°♄49'54	
minimum elong	1381 Apr 29 j 06:52	16°♄45'44	13°57'11	opposition	1389 Nov 08 j 15:47	24°♄50'18	-13°-3'-1
max. Earth dist.	1381 Apr 29 j 14:02	16°♄46'08	50.00583 AU	min. Earth dist.	1389 Nov 08 j 19:40	24°♄50'07	47.52827 AU
retrograde	1381 Aug 09 j 20:08	18°♄14'36		direct	1390 Jan 29 j 01:20	23°♄51'19	
opposition	1381 Nov 01 j 05:04	17°♄15'10	-14°-26'-49				
min. Earth dist.	1381 Oct 31 j 22:23	17°♄15'29	48.04532 AU	conjunction	1390 May 08 j 08:16	25°♄17'46	-12°-26'-10
direct	1382 Jan 21 j 16:46	16°♄16'34		minimum elong	1390 May 08 j 08:28	25°♄17'47	12°26'11
				max. Earth dist.	1390 May 08 j 04:41	25°♄17'34	49.43919 AU
conjunction	1382 Apr 30 j 12:11	17°♄42'24	-13°-47'-56	retrograde	1390 Aug 18 j 20:20	26°♄47'02	
minimum elong	1382 Apr 30 j 12:22	17°♄42'25	13°47'57	opposition	1390 Nov 09 j 20:03	25°♄47'24	-12°-51'-27
max. Earth dist.	1382 Apr 30 j 18:54	17°♄42'47	49.96222 AU	min. Earth dist.	1390 Nov 10 j 00:06	25°♄47'12	47.44653 AU
retrograde	1382 Aug 11 j 01:09	19°♄11'20		direct	1391 Jan 30 j 07:56	24°♄48'21	
opposition	1382 Nov 02 j 09:23	18°♄11'55	-14°-17'-7				
min. Earth dist.	1382 Nov 02 j 04:46	18°♄12'08	47.99790 AU	conjunction	1391 May 09 j 13:51	26°♄14'57	-12°-14'-53
direct	1383 Jan 22 j 22:15	17°♄13'18		minimum elong	1391 May 09 j 14:03	26°♄14'58	12°14'55
				max. Earth dist.	1391 May 09 j 08:13	26°♄14'38	49.35759 AU
conjunction	1383 May 01 j 17:44	18°♄39'12	-13°-38'-28	retrograde	1391 Aug 19 j 23:53	27°♄44'18	
minimum elong	1383 May 01 j 17:56	18°♄39'13	13°38'29	opposition	1391 Nov 11 j 00:31	26°♄44'38	-12°-39'-38
max. Earth dist.	1383 May 01 j 22:42	18°♄39'29	49.91365 AU	min. Earth dist.	1391 Nov 11 j 05:36	26°♄44'24	47.36204 AU
retrograde	1383 Aug 12 j 08:01	20°♄08'09		direct	1392 Jan 31 j 14:01	25°♄45'33	
opposition	1383 Nov 03 j 13:42	19°♄08'44	-14°-7'-12				
min. Earth dist.	1383 Nov 03 j 09:35	19°♄08'56	47.94517 AU	conjunction	1392 May 09 j 19:34	27°♄12'17	-12°-3'-21

minimum elong	1392 May 09 j 19:46	27° 8 12'18	12°03'22	conjunction	1400 May 17 j 20:11	4° II 57'09	-10°-22'-48
max. Earth dist.	1392 May 09 j 13:38	27° 8 11'57	49.27298 AU	minimum elong	1400 May 17 j 20:23	4° II 57'09	10°22'49
retrograde	1392 Aug 20 j 04:09	28° 8 41'45		max. Earth dist.	1400 May 17 j 03:26	4° II 56'11	48.44098 AU
opposition	1392 Nov 11 j 04:59	27° 8 42'04	-12°-27'-33	retrograde	1400 Aug 28 j 05:07	6° II 27'35	
min. Earth dist.	1392 Nov 11 j 11:34	27° 8 41'46	47.27432 AU	opposition	1400 Nov 18 j 18:50	5° II 27'24	-10°-42'-21
direct	1393 Jan 31 j 20:24	26° 8 42'57		min. Earth dist.	1400 Nov 19 j 10:44	5° II 26'38	46.41269 AU
				direct	1401 Feb 08 j 08:49	4° II 27'31	
conjunction	1393 May 11 j 01:18	28° 8 09'50	-11°-51'-35	max. Earth dist.	1401 May 18 j 07:37	5° II 54'40	48.31823 AU
minimum elong	1393 May 11 j 01:30	28° 8 09'51	11°51'36				
max. Earth dist.	1393 May 10 j 18:03	28° 8 09'25	49.18517 AU	conjunction	1401 May 19 j 02:25	5° II 55'45	-10°-9'-10
retrograde	1393 Aug 21 j 11:28	29° 8 39'25		minimum elong	1401 May 19 j 02:36	5° II 55'46	10°09'11
opposition	1393 Nov 12 j 09:25	28° 8 39'44	-12°-15'-14	retrograde	1401 Aug 29 j 10:23	7° II 26'21	
min. Earth dist.	1393 Nov 12 j 16:18	28° 8 39'24	47.18309 AU	opposition	1401 Nov 19 j 23:50	6° II 26'05	-10°-28'-5
direct	1394 Feb 01 j 23:35	27° 8 40'33		min. Earth dist.	1401 Nov 20 j 16:52	6° II 25'16	46.28712 AU
				direct	1402 Feb 09 j 14:28	5° II 26'05	
conjunction	1394 May 12 j 07:06	29° 8 07'36	-11°-39'-34				
minimum elong	1394 May 12 j 07:18	29° 8 07'36	11°39'34	conjunction	1402 May 20 j 08:51	6° II 54'33	-9°-55'-18
max. Earth dist.	1394 May 11 j 21:59	29° 8 07'05	49.09327 AU	minimum elong	1402 May 20 j 09:02	6° II 54'33	9°55'19
	1394 Jun 22 j 03:24	0° II		max. Earth dist.	1402 May 19 j 13:49	6° II 53'27	48.19269 AU
retrograde	1394 Aug 22 j 19:44	0° II 37'19		retrograde	1402 Aug 30 j 14:27	8° II 25'20	
	1394 Oct 24 j 09:57	30° R 8		opposition	1402 Nov 21 j 04:59	7° II 24'58	-10°-13'-33
opposition	1394 Nov 13 j 14:08	29° 8 37'35	-12°-2'-40	min. Earth dist.	1402 Nov 21 j 23:14	7° II 24'06	46.15876 AU
min. Earth dist.	1394 Nov 13 j 23:15	29° 8 37'09	47.08745 AU	direct	1403 Feb 10 j 21:54	6° II 24'52	
direct	1395 Feb 03 j 01:49	28° 8 38'21					
	1395 May 09 j 11:34	0° II		conjunction	1403 May 21 j 15:24	7° II 53'34	-9°-41'-9
				minimum elong	1403 May 21 j 15:35	7° II 53'35	9°41'10
conjunction	1395 May 13 j 13:17	0° II 05'34	-11°-27'-20	max. Earth dist.	1403 May 20 j 19:08	7° II 52'24	48.06462 AU
minimum elong	1395 May 13 j 13:28	0° II 05'35	11°27'21	retrograde	1403 Aug 31 j 21:38	9° II 24'34	
max. Earth dist.	1395 May 13 j 03:34	0° II 05'01	48.99670 AU	opposition	1403 Nov 22 j 10:01	8° II 24'09	-9°-58'-45
retrograde	1395 Aug 24 j 00:59	1° II 35'24		min. Earth dist.	1403 Nov 23 j 04:20	8° II 23'16	46.02787 AU
opposition	1395 Nov 14 j 18:42	0° II 35'38	-11°-49'-52	direct	1404 Feb 12 j 02:15	7° II 23'57	
min. Earth dist.	1395 Nov 15 j 04:38	0° II 35'09	46.98676 AU				
	1395 Dec 18 j 05:19	30° R 8		conjunction	1404 May 21 j 22:03	8° II 52'55	-9°-26'-45
direct	1396 Feb 04 j 06:43	29° 8 36'19		minimum elong	1404 May 21 j 22:14	8° II 52'56	9°26'47
	1396 Mar 22 j 20:37	0° II		max. Earth dist.	1404 May 21 j 00:16	8° II 51'39	47.93377 AU
				retrograde	1404 Sep 01 j 06:14	10° II 24'08	
conjunction	1396 May 13 j 19:21	1° II 03'42	-11°-14'-53	opposition	1404 Nov 22 j 15:25	9° II 23'40	-9°-43'-40
minimum elong	1396 May 13 j 19:33	1° II 03'43	11°14'54	min. Earth dist.	1404 Nov 23 j 11:38	9° II 22'41	45.89414 AU
max. Earth dist.	1396 May 13 j 06:58	1° II 03'00	48.89497 AU	direct	1405 Feb 12 j 05:17	8° II 23'23	
retrograde	1396 Aug 24 j 06:47	2° II 33'38		max. Earth dist.	1405 May 22 j 06:53	9° II 51'22	47.79995 AU
opposition	1396 Nov 14 j 23:30	1° II 33'49	-11°-36'-50				
min. Earth dist.	1396 Nov 15 j 10:58	1° II 33'16	46.88096 AU	conjunction	1405 May 23 j 04:45	9° II 52'38	-9°-12'-6
direct	1397 Feb 04 j 11:47	0° II 34'24		minimum elong	1405 May 23 j 04:56	9° II 52'39	9°12'07
				retrograde	1405 Sep 02 j 13:34	11° II 24'06	
conjunction	1397 May 15 j 01:25	2° II 01'56	-11°-2'-13	opposition	1405 Nov 23 j 20:47	10° II 23'34	-9°-28'-20
minimum elong	1397 May 15 j 01:36	2° II 01'57	11°02'14	min. Earth dist.	1405 Nov 24 j 17:22	10° II 22'35	45.75700 AU
max. Earth dist.	1397 May 14 j 12:13	2° II 01'11	48.78807 AU	direct	1406 Feb 13 j 10:07	9° II 23'12	
retrograde	1397 Aug 25 j 09:13	3° II 32'00		max. Earth dist.	1406 May 23 j 11:22	10° II 51'21	47.66233 AU
opposition	1397 Nov 16 j 04:23	2° II 32'05	-11°-23'-35				
min. Earth dist.	1397 Nov 16 j 17:31	2° II 31'28	46.77007 AU	conjunction	1406 May 24 j 11:43	10° II 52'46	-8°-57'-12
direct	1398 Feb 05 j 19:51	1° II 32'34		minimum elong	1406 May 24 j 11:53	10° II 52'47	8°57'14
				retrograde	1406 Sep 03 j 21:23	12° II 24'29	
conjunction	1398 May 16 j 07:37	3° II 00'15	-10°-49'-18	opposition	1406 Nov 25 j 02:14	11° II 23'54	-9°-12'-44
minimum elong	1398 May 16 j 07:49	3° II 00'16	10°49'20	min. Earth dist.	1406 Nov 26 j 00:31	11° II 22'49	45.61585 AU
max. Earth dist.	1398 May 15 j 16:57	2° II 59'25	48.67650 AU	direct	1407 Feb 14 j 15:16	10° II 23'26	
retrograde	1398 Aug 26 j 15:48	4° II 30'26					
opposition	1398 Nov 17 j 09:04	3° II 30'26	-11°-10'-5	conjunction	1407 May 25 j 19:03	11° II 53'19	-8°-42'-4
min. Earth dist.	1398 Nov 17 j 22:40	3° II 29'47	46.65477 AU	minimum elong	1407 May 25 j 19:14	11° II 53'19	8°42'04
direct	1399 Feb 07 j 00:31	2° II 30'48		max. Earth dist.	1407 May 24 j 17:54	11° II 51'50	47.52017 AU
				retrograde	1407 Sep 05 j 01:22	13° II 25'18	
conjunction	1399 May 17 j 13:53	3° II 58'39	-10°-36'-10	opposition	1407 Nov 26 j 07:58	12° II 24'38	-8°-56'-53
minimum elong	1399 May 17 j 14:04	3° II 58'40	10°36'12	min. Earth dist.	1407 Nov 27 j 07:51	12° II 23'28	45.46977 AU
max. Earth dist.	1399 May 16 j 21:20	3° II 57'42	48.56057 AU	direct	1408 Feb 15 j 23:27	11° II 24'02	
retrograde	1399 Aug 28 j 00:30	5° II 28'58		max. Earth dist.	1408 May 24 j 23:21	12° II 52'39	47.37306 AU
opposition	1399 Nov 18 j 14:01	4° II 28'52	-10°-56'-21				
min. Earth dist.	1399 Nov 19 j 05:44	4° II 28'07	46.53547 AU	conjunction	1408 May 26 j 02:19	12° II 54'14	-8°-26'-41
direct	1400 Feb 08 j 02:43	3° II 29'06		minimum elong	1408 May 26 j 02:29	12° II 54'14	8°26'42

retrograde	1408 Sep 05 j 08:19	14°II26'28		direct	1417 Feb 24 j 05:05	20°II42'51	
opposition	1408 Nov 26 j 13:43	13°II25'43	-8°-40'-47	max. Earth dist.	1417 Jun 03 j 12:12	22°II13'54	45.86901 AU
min. Earth dist.	1408 Nov 27 j 14:19	13°II24'31	45.31868 AU				
direct	1409 Feb 16 j 05:36	12°II24'59		conjunction	1417 Jun 05 j 01:53	22°II16'11	-5°-56'-57
max. Earth dist.	1409 May 26 j 04:44	13°II53'46	47.22080 AU	minimum elong	1417 Jun 05 j 02:01	22°II16'11	5°56'59
				retrograde	1417 Sep 15 j 08:03	23°II51'06	
conjunction	1409 May 27 j 09:45	13°II55'29	-8°-11'-4	opposition	1417 Dec 05 j 23:20	22°II49'06	-6°-3'-50
minimum elong	1409 May 27 j 09:56	13°II55'29	8°11'05	min. Earth dist.	1417 Dec 07 j 10:01	22°II47'22	43.78803 AU
retrograde	1409 Sep 06 j 18:28	15°II27'59		direct	1418 Feb 25 j 13:44	21°II46'48	
opposition	1409 Nov 27 j 19:41	14°II27'06	-8°-24'-26	max. Earth dist.	1418 Jun 04 j 19:18	23°II18'12	45.68682 AU
min. Earth dist.	1409 Nov 28 j 22:35	14°II25'47	45.16263 AU				
direct	1410 Feb 17 j 08:26	13°II26'14		conjunction	1418 Jun 06 j 10:40	23°II20'35	-5°-38'-59
max. Earth dist.	1410 May 27 j 11:44	14°II55'17	47.06384 AU	minimum elong	1418 Jun 06 j 10:48	23°II20'35	5°38'59
				retrograde	1418 Sep 16 j 15:27	24°II55'54	
conjunction	1410 May 28 j 17:21	14°II57'01	-7°-55'-12	opposition	1418 Dec 07 j 06:31	23°II53'46	-5°-44'-59
minimum elong	1410 May 28 j 17:31	14°II57'02	7°55'13	min. Earth dist.	1418 Dec 08 j 18:00	23°II51'59	43.60275 AU
retrograde	1410 Sep 08 j 01:52	16°II29'47		direct	1419 Feb 26 j 22:12	22°II51'17	
opposition	1410 Nov 29 j 01:38	15°II28'46	-8°-7'-49	max. Earth dist.	1419 Jun 06 j 02:41	24°II23'01	45.50038 AU
min. Earth dist.	1410 Nov 30 j 04:56	15°II27'26	45.00197 AU				
direct	1411 Feb 18 j 14:11	14°II27'43		conjunction	1419 Jun 07 j 19:51	24°II25'31	-5°-20'-46
max. Earth dist.	1411 May 28 j 16:58	15°II56'56	46.90246 AU	minimum elong	1419 Jun 07 j 19:58	24°II25'32	5°20'47
				retrograde	1419 Sep 18 j 00:33	26°II01'15	
conjunction	1411 May 30 j 01:00	15°II58'50	-7°-39'-6	opposition	1419 Dec 08 j 13:58	24°II58'58	-5°-25'-52
minimum elong	1411 May 30 j 01:10	15°II58'50	7°39'07	min. Earth dist.	1419 Dec 10 j 03:43	24°II57'04	43.41306 AU
retrograde	1411 Sep 09 j 09:37	17°II31'50		direct	1420 Feb 28 j 04:47	23°II56'18	
opposition	1411 Nov 30 j 07:40	16°II30'41	-7°-50'-57	max. Earth dist.	1420 Jun 06 j 11:16	25°II28'26	45.30949 AU
min. Earth dist.	1411 Dec 01 j 12:40	16°II29'16	44.83733 AU				
direct	1412 Feb 19 j 20:38	15°II29'27		conjunction	1420 Jun 08 j 05:14	25°II31'00	-5°-2'-17
max. Earth dist.	1412 May 29 j 00:27	16°II58'59	46.73726 AU	minimum elong	1420 Jun 08 j 05:21	25°II31'00	5°02'18
				retrograde	1420 Sep 18 j 10:31	27°II07'08	
conjunction	1412 May 30 j 08:52	17°II00'54	-7°-22'-44	opposition	1420 Dec 08 j 21:36	26°II04'41	-5°-6'-28
minimum elong	1412 May 30 j 09:02	17°II00'55	7°22'45	min. Earth dist.	1420 Dec 10 j 11:38	26°II02'46	43.21876 AU
retrograde	1412 Sep 09 j 13:47	18°II34'11		direct	1421 Feb 28 j 11:08	25°II01'48	
opposition	1412 Nov 30 j 13:58	17°II32'53	-7°-33'-48	max. Earth dist.	1421 Jun 07 j 18:05	26°II34'15	45.11391 AU
min. Earth dist.	1412 Dec 01 j 20:05	17°II31'24	44.66915 AU				
direct	1413 Feb 20 j 06:22	16°II31'28		conjunction	1421 Jun 09 j 14:35	26°II36'58	-4°-43'-33
max. Earth dist.	1413 May 30 j 06:46	18°II01'14	46.56893 AU	minimum elong	1421 Jun 09 j 14:42	26°II36'59	4°43'34
				retrograde	1421 Sep 19 j 21:46	28°II13'32	
conjunction	1413 May 31 j 16:34	18°II03'14	-7°-6'-7	opposition	1421 Dec 10 j 05:30	27°II10'54	-4°-46'-47
minimum elong	1413 May 31 j 16:44	18°II03'15	7°06'08	min. Earth dist.	1421 Dec 11 j 21:36	27°II08'52	43.01998 AU
retrograde	1413 Sep 10 j 20:38	19°II36'48		direct	1422 Mar 01 j 17:51	26°II07'47	
opposition	1413 Dec 01 j 20:18	18°II35'22	-7°-16'-23	max. Earth dist.	1422 Jun 09 j 03:28	27°II40'41	44.91390 AU
min. Earth dist.	1413 Dec 03 j 02:39	18°II33'51	44.49810 AU				
direct	1414 Feb 21 j 13:23	17°II33'45		conjunction	1422 Jun 11 j 00:28	27°II43'27	-4°-24'-33
max. Earth dist.	1414 May 31 j 13:28	19°II03'47	46.39771 AU	minimum elong	1422 Jun 11 j 00:35	27°II43'27	4°24'34
				retrograde	1422 Sep 21 j 05:47	29°II20'24	
conjunction	1414 Jun 02 j 00:39	19°II05'53	-6°-49'-13	opposition	1422 Dec 11 j 13:25	28°II17'35	-4°-26'-50
minimum elong	1414 Jun 02 j 00:48	19°II05'53	6°49'14	min. Earth dist.	1422 Dec 13 j 06:35	28°II15'30	42.81696 AU
retrograde	1414 Sep 12 j 05:03	20°II39'46		direct	1423 Mar 03 j 04:18	27°II14'14	
opposition	1414 Dec 03 j 02:49	19°II38'10	-6°-58'-40	max. Earth dist.	1423 Jun 10 j 11:25	28°II47'30	44.71000 AU
min. Earth dist.	1414 Dec 04 j 11:00	19°II36'34	44.32442 AU				
direct	1415 Feb 22 j 18:55	18°II36'23		conjunction	1423 Jun 12 j 10:24	28°II50'24	-4°-5'-18
max. Earth dist.	1415 Jun 01 j 21:38	20°II06'46	46.22408 AU	minimum elong	1423 Jun 12 j 10:30	28°II50'24	4°05'19
					1423 Aug 03 j 11:52	0°☾	
conjunction	1415 Jun 03 j 08:59	20°II08'53	-6°-32'-4	retrograde	1423 Sep 22 j 15:24	0°☾27'47	
minimum elong	1415 Jun 03 j 09:08	20°II08'53	6°32'06		1423 Nov 12 j 08:17	30°☾II	
retrograde	1415 Sep 13 j 14:47	21°II43'05		opposition	1423 Dec 12 j 21:34	29°II24'46	-4°-6'-36
opposition	1415 Dec 04 j 09:28	20°II41'21	-6°-40'-41	min. Earth dist.	1423 Dec 14 j 15:30	29°II22'38	42.61046 AU
min. Earth dist.	1415 Dec 05 j 17:39	20°II39'45	44.14830 AU	direct	1424 Mar 03 j 13:13	28°II21'10	
direct	1416 Feb 24 j 00:11	19°II39'23		max. Earth dist.	1424 Jun 10 j 20:20	29°II54'51	44.50263 AU
max. Earth dist.	1416 Jun 02 j 03:44	21°II10'02	46.04792 AU				
				conjunction	1424 Jun 12 j 20:28	29°II57'50	-3°-45'-46
conjunction	1416 Jun 03 j 17:13	21°II12'17	-6°-14'-39	minimum elong	1424 Jun 12 j 20:34	29°II57'51	3°45'47
minimum elong	1416 Jun 03 j 17:21	21°II12'18	6°14'39		1424 Jun 14 j 07:13	0°☾	
retrograde	1416 Sep 14 j 01:29	22°II46'51		retrograde	1424 Sep 22 j 23:25	1°☾35'42	
opposition	1416 Dec 04 j 16:21	21°II44'59	-6°-22'-24	opposition	1424 Dec 13 j 06:02	0°☾32'28	-3°-46'-4
min. Earth dist.	1416 Dec 06 j 01:59	21°II43'18	43.96969 AU	min. Earth dist.	1424 Dec 15 j 01:41	0°☾30'13	42.40088 AU

	1425 Jan 09 j 21:41	30°R II	max. Earth dist.	1433 Jun 21 j 17:06	10°E30'42	42.53282 AU
direct	1425 Mar 04 j 22:07	29°E28'37				
	1425 Apr 27 j 01:15	0°E	conjunction	1433 Jun 24 j 03:35	10°E34'30	0°-37'-51
max. Earth dist.	1425 Jun 12 j 06:17	1°E02'47 44.29264 AU	minimum elong	1433 Jun 24 j 03:36	10°E34'30	0°37'52
			retrograde	1433 Oct 04 j 12:33	12°E17'25	
conjunction	1425 Jun 14 j 06:47	1°E05'48 -3°-25'-58	opposition	1433 Dec 23 j 21:13	11°E12'15	0°-28'-8
minimum elong	1425 Jun 14 j 06:52	1°E05'49 3°25'59	min. Earth dist.	1433 Dec 26 j 01:16	11°E09'29	40.41507 AU
retrograde	1425 Sep 24 j 10:16	2°E44'08	direct	1434 Mar 15 j 07:15	10°E06'02	
opposition	1425 Dec 14 j 14:30	1°E40'42 -3°-25'-15	max. Earth dist.	1434 Jun 23 j 05:27	11°E45'12	42.29864 AU
min. Earth dist.	1425 Dec 16 j 10:06	1°E38'27 42.18900 AU				
direct	1426 Mar 06 j 05:29	0°E36'35	conjunction	1434 Jun 25 j 16:48	11°E49'05	0°-15'-40
max. Earth dist.	1426 Jun 13 j 14:44	2°E11'11 44.08041 AU	minimum elong	1434 Jun 25 j 16:48	11°E49'05	0°15'42
			behind sun begin	1434 Jun 25 j 16:21	11°E49'04	
conjunction	1426 Jun 15 j 17:17	2°E14'21 -3°-5'-54	behind sun end	1434 Jun 25 j 17:16	11°E49'07	
minimum elong	1426 Jun 15 j 17:22	2°E14'21 3°05'55	retrograde	1434 Oct 05 j 23:24	13°E32'38	
retrograde	1426 Sep 26 j 00:12	3°E53'11	opposition	1434 Dec 25 j 08:30	12°E27'12	0°-4'-42
opposition	1426 Dec 15 j 23:25	2°E49'31 -3°-4'-7	min. Earth dist.	1434 Dec 27 j 14:01	12°E24'20	40.17909 AU
min. Earth dist.	1426 Dec 17 j 20:37	2°E47'11 41.97521 AU	asc. node	1435 Mar 08 j 17:43	11°E21'27	
direct	1427 Mar 07 j 10:48	1°E45'09	direct	1435 Mar 16 j 20:19	11°E20'39	
max. Earth dist.	1427 Jun 15 j 01:47	3°E20'20 43.86634 AU	max. Earth dist.	1435 Jun 24 j 17:42	13°E00'26	42.06128 AU
conjunction	1427 Jun 17 j 04:12	3°E23'30 -2°-45'-33	conjunction	1435 Jun 27 j 06:12	13°E04'25	0°06'51
minimum elong	1427 Jun 17 j 04:16	3°E23'30 2°45'34	minimum elong	1435 Jun 27 j 06:11	13°E04'25	0°06'52
retrograde	1427 Sep 27 j 10:17	5°E02'51	behind sun begin	1435 Jun 27 j 00:08	13°E04'03	
opposition	1427 Dec 17 j 08:28	3°E59'00 -2°-42'-43	behind sun end	1435 Jun 27 j 12:14	13°E04'48	
min. Earth dist.	1427 Dec 19 j 05:56	3°E56'38 41.75966 AU	retrograde	1435 Oct 07 j 11:01	14°E48'37	
direct	1428 Mar 07 j 20:37	2°E54'23	opposition	1435 Dec 26 j 19:55	13°E42'53	0°18'59
max. Earth dist.	1428 Jun 15 j 11:11	4°E30'03 43.65069 AU	min. Earth dist.	1435 Dec 29 j 01:45	13°E39'59	39.94032 AU
			direct	1436 Mar 17 j 09:08	12°E35'59	
conjunction	1428 Jun 17 j 15:13	4°E33'21 -2°-24'-56	max. Earth dist.	1436 Jun 25 j 05:40	14°E16'22	41.82117 AU
minimum elong	1428 Jun 17 j 15:16	4°E33'21 2°24'58				
retrograde	1428 Sep 27 j 21:07	6°E13'15	conjunction	1436 Jun 27 j 19:56	14°E20'31	0°29'31
opposition	1428 Dec 17 j 17:50	5°E09'12 -2°-21'00	minimum elong	1436 Jun 27 j 19:55	14°E20'31	0°29'31
min. Earth dist.	1428 Dec 19 j 16:00	5°E06'47 41.54262 AU	retrograde	1436 Oct 08 j 00:23	16°E05'22	
direct	1429 Mar 09 j 07:06	4°E04'21	opposition	1436 Dec 27 j 07:51	14°E59'21	0°42'58
max. Earth dist.	1429 Jun 16 j 21:46	5°E40'36 43.43310 AU	min. Earth dist.	1436 Dec 29 j 15:32	14°E56'20	39.69931 AU
			direct	1437 Mar 18 j 19:00	13°E52'06	
conjunction	1429 Jun 19 j 02:32	5°E43'58 -2°-4'-3	max. Earth dist.	1437 Jun 26 j 19:45	15°E33'13	41.57912 AU
minimum elong	1429 Jun 19 j 02:35	5°E43'58 2°04'03				
retrograde	1429 Sep 29 j 06:25	7°E24'26	conjunction	1437 Jun 29 j 09:55	15°E37'23	0°52'28
opposition	1429 Dec 19 j 03:34	6°E20'11 -1°-59'00	minimum elong	1437 Jun 29 j 09:53	15°E37'23	0°52'28
min. Earth dist.	1429 Dec 21 j 03:19	6°E17'41 41.32343 AU	retrograde	1437 Oct 09 j 14:17	17°E22'56	
direct	1430 Mar 10 j 18:12	5°E15'06	opposition	1437 Dec 28 j 20:02	16°E16'37	1°07'13
max. Earth dist.	1430 Jun 18 j 08:46	6°E51'56 43.21319 AU	min. Earth dist.	1437 Dec 31 j 03:34	16°E13'36	39.45662 AU
			direct	1438 Mar 20 j 06:53	15°E09'01	
conjunction	1430 Jun 20 j 14:19	6°E55'22 -1°-42'-53	max. Earth dist.	1438 Jun 28 j 08:16	16°E50'47	41.33556 AU
minimum elong	1430 Jun 20 j 14:21	6°E55'22 1°42'55				
retrograde	1430 Sep 30 j 17:50	8°E36'27	conjunction	1438 Jul 01 j 00:20	16°E55'06	1°15'39
opposition	1430 Dec 20 j 13:21	7°E32'00 -1°-36'-43	minimum elong	1438 Jul 01 j 00:17	16°E55'06	1°15'39
min. Earth dist.	1430 Dec 22 j 13:17	7°E29'29 41.10161 AU	retrograde	1438 Oct 11 j 07:11	18°E41'23	
direct	1431 Mar 12 j 03:18	6°E26'40	opposition	1438 Dec 30 j 08:33	17°E34'46	1°31'44
max. Earth dist.	1431 Jun 19 j 18:43	8°E04'01 42.99006 AU	min. Earth dist.	1439 Jan 01 j 17:20	17°E31'40	39.21291 AU
			direct	1439 Mar 21 j 17:48	16°E26'48	
conjunction	1431 Jun 22 j 02:28	8°E07'36 -1°-21'-28	max. Earth dist.	1439 Jun 29 j 23:19	18°E09'25	41.09097 AU
minimum elong	1431 Jun 22 j 02:30	8°E07'37 1°21'29				
retrograde	1431 Oct 02 j 07:35	9°E49'18	conjunction	1439 Jul 02 j 15:17	18°E13'45	1°39'05
opposition	1431 Dec 21 j 23:45	8°E44'38 -1°-14'-8	minimum elong	1439 Jul 02 j 15:14	18°E13'44	1°39'05
min. Earth dist.	1431 Dec 24 j 01:51	8°E42'00 40.87646 AU	retrograde	1439 Oct 12 j 22:07	20°E00'47	
direct	1432 Mar 12 j 11:04	7°E39'02	opposition	1439 Dec 31 j 21:38	18°E53'53	1°56'30
max. Earth dist.	1432 Jun 20 j 06:51	9°E17'02 42.76332 AU	min. Earth dist.	1440 Jan 03 j 07:01	18°E50'43	38.96839 AU
			direct	1440 Mar 22 j 08:10	17°E45'35	
conjunction	1432 Jun 22 j 14:53	9°E20'40 0°-59'-47	max. Earth dist.	1440 Jun 30 j 13:16	19°E28'58	40.84580 AU
minimum elong	1432 Jun 22 j 14:55	9°E20'40 0°59'49				
retrograde	1432 Oct 02 j 21:31	11°E02'58	conjunction	1440 Jul 03 j 06:19	19°E33'24	2°02'45
opposition	1432 Dec 22 j 10:23	9°E58'04 0°-51'-17	minimum elong	1440 Jul 03 j 06:16	19°E33'24	2°02'44
min. Earth dist.	1432 Dec 24 j 13:01	9°E55'23 40.64753 AU	retrograde	1440 Oct 13 j 14:25	21°E21'15	
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


















































































































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direct	1441 Mar 23 j 21:29	19° \mathring{S} 05°27		direct	1449 Apr 03 j 20:11	0° \mathring{N} 28°18	
max. Earth dist.	1441 Jul 02 j 03:59	20° \mathring{S} 49°39	40.59976 AU	max. Earth dist.	1449 Jul 13 j 20:14	2° \mathring{N} 19°53	38.56210 AU
conjunction	1441 Jul 04 j 22:03	20° \mathring{S} 54°12	2°26'37	conjunction	1449 Jul 16 j 21:40	2° \mathring{N} 25°16	5°44'32
minimum elong	1441 Jul 04 j 21:58	20° \mathring{S} 54°11	2°26'37	minimum elong	1449 Jul 16 j 21:28	2° \mathring{N} 25°15	5°44'32
retrograde	1441 Oct 15 j 04:15	22° \mathring{S} 42°53		retrograde	1449 Oct 27 j 06:10	4° \mathring{N} 21°24	
opposition	1442 Jan 03 j 00:48	21° \mathring{S} 35°26	2°46'48	opposition	1450 Jan 14 j 08:48	3° \mathring{N} 11°17	6°16'39
min. Earth dist.	1442 Jan 05 j 11:54	21° \mathring{S} 32°09	38.47749 AU	min. Earth dist.	1450 Jan 17 j 02:16	3° \mathring{N} 07°28	36.44200 AU
direct	1442 Mar 25 j 10:37	20° \mathring{S} 26°30		direct	1450 Apr 05 j 12:19	1° \mathring{N} 59°09	
max. Earth dist.	1442 Jul 03 j 20:05	22° \mathring{S} 11°36	40.35261 AU	max. Earth dist.	1450 Jul 15 j 14:42	3° \mathring{N} 51°41	38.30120 AU
conjunction	1442 Jul 06 j 14:18	22° \mathring{S} 16°12	2°50'43	conjunction	1450 Jul 18 j 17:50	3° \mathring{N} 57°14	6°09'56
minimum elong	1442 Jul 06 j 14:13	22° \mathring{S} 16°11	2°50'43	minimum elong	1450 Jul 18 j 17:38	3° \mathring{N} 57°13	6°09'57
retrograde	1442 Oct 16 j 20:27	24° \mathring{S} 05°46		retrograde	1450 Oct 29 j 04:07	5° \mathring{N} 54°25	
opposition	1443 Jan 04 j 15:02	22° \mathring{S} 58°03	3°12'18	opposition	1451 Jan 16 j 03:09	4° \mathring{N} 43°53	6°43'37
min. Earth dist.	1443 Jan 07 j 02:09	22° \mathring{S} 54°44	38.23017 AU	min. Earth dist.	1451 Jan 18 j 21:39	4° \mathring{N} 39°59	36.18309 AU
direct	1443 Mar 26 j 23:29	21° \mathring{S} 48°47		direct	1451 Apr 07 j 03:58	3° \mathring{N} 31°17	
max. Earth dist.	1443 Jul 05 j 10:32	23° \mathring{S} 34°41	40.10348 AU	max. Earth dist.	1451 Jul 17 j 11:58	5° \mathring{N} 24°58	38.04084 AU
conjunction	1443 Jul 08 j 06:58	23° \mathring{S} 39°28	3°15'01	conjunction	1451 Jul 20 j 14:36	5° \mathring{N} 30°32	6°35'24
minimum elong	1443 Jul 08 j 06:52	23° \mathring{S} 39°27	3°15'01	minimum elong	1451 Jul 20 j 14:24	5° \mathring{N} 30°31	6°35'24
retrograde	1443 Oct 18 j 15:17	25° \mathring{S} 29°56		retrograde	1451 Oct 31 j 01:42	7° \mathring{N} 28°46	
opposition	1444 Jan 06 j 05:50	24° \mathring{S} 21°56	3°38'02	opposition	1452 Jan 17 j 22:06	6° \mathring{N} 17°51	7°10'40
min. Earth dist.	1444 Jan 08 j 18:51	24° \mathring{S} 18°30	37.98083 AU	min. Earth dist.	1452 Jan 20 j 16:44	6° \mathring{N} 13°55	35.92508 AU
direct	1444 Mar 27 j 10:16	23° \mathring{S} 12°19		direct	1452 Apr 07 j 23:52	5° \mathring{N} 04°49	
max. Earth dist.	1444 Jul 06 j 03:42	24° \mathring{S} 59°11	39.85200 AU	max. Earth dist.	1452 Jul 18 j 08:24	6° \mathring{N} 59°35	37.78172 AU
conjunction	1444 Jul 09 j 00:16	25° \mathring{S} 04°00	3°39'30	conjunction	1452 Jul 21 j 11:50	7° \mathring{N} 05°16	7°00'55
minimum elong	1444 Jul 09 j 00:10	25° \mathring{S} 04°00	3°39'31	minimum elong	1452 Jul 21 j 11:37	7° \mathring{N} 05°15	7°00'56
retrograde	1444 Oct 19 j 09:03	26° \mathring{S} 55°23		retrograde	1452 Nov 01 j 01:54	9° \mathring{N} 04°35	
opposition	1445 Jan 06 j 21:09	25° \mathring{S} 47°05	4°04'00	opposition	1453 Jan 18 j 17:33	7° \mathring{N} 53°17	7°37'47
min. Earth dist.	1445 Jan 09 j 10:39	25° \mathring{S} 43°36	37.72904 AU	min. Earth dist.	1453 Jan 21 j 12:00	7° \mathring{N} 49°20	35.66861 AU
direct	1445 Mar 29 j 01:50	24° \mathring{S} 37°05		direct	1453 Apr 09 j 19:43	6° \mathring{N} 39°48	
max. Earth dist.	1445 Jul 07 j 19:16	26° \mathring{S} 24°48	39.59804 AU	max. Earth dist.	1453 Jul 20 j 06:05	8° \mathring{N} 35°46	37.52384 AU
conjunction	1445 Jul 10 j 17:50	26° \mathring{S} 29°48	4°04'11	conjunction	1453 Jul 23 j 09:49	8° \mathring{N} 41°31	7°26'28
minimum elong	1445 Jul 10 j 17:42	26° \mathring{S} 29°48	4°04'11	minimum elong	1453 Jul 23 j 09:34	8° \mathring{N} 41°30	7°26'27
retrograde	1445 Oct 21 j 05:31	28° \mathring{S} 22°06		retrograde	1453 Nov 02 j 23:45	10° \mathring{N} 41°58	
opposition	1446 Jan 08 j 12:54	27° \mathring{S} 13°28	4°30'10	opposition	1454 Jan 20 j 13:48	9° \mathring{N} 30°18	8°04'55
min. Earth dist.	1446 Jan 11 j 03:27	27° \mathring{S} 09°55	37.47489 AU	min. Earth dist.	1454 Jan 23 j 09:24	9° \mathring{N} 26°16	35.41338 AU
direct	1446 Mar 30 j 18:09	26° \mathring{S} 03°05		direct	1454 Apr 11 j 15:24	8° \mathring{N} 16°24	
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conjunction	1446 Jul 12 j 12:12	27° \mathring{S} 56°51	4°29'03	conjunction	1454 Jul 25 j 08:29	10° \mathring{N} 19°24	7°52'00
minimum elong	1446 Jul 12 j 12:04	27° \mathring{S} 56°50	4°29'03	minimum elong	1454 Jul 25 j 08:13	10° \mathring{N} 19°22	7°52'00
retrograde	1446 Oct 22 j 23:49	29° \mathring{S} 50°04		retrograde	1454 Nov 04 j 21:51	12° \mathring{N} 21°01	
opposition	1447 Jan 10 j 05:10	28° \mathring{S} 41°05	4°56'32	opposition	1455 Jan 22 j 10:27	11° \mathring{N} 08°59	8°32'04
min. Earth dist.	1447 Jan 12 j 21:16	28° \mathring{S} 37°25	37.21844 AU	min. Earth dist.	1455 Jan 25 j 05:38	11° \mathring{N} 04°57	35.15917 AU
direct	1447 Apr 01 j 11:34	27° \mathring{S} 30°17		direct	1455 Apr 13 j 12:03	9° \mathring{N} 54°39	
max. Earth dist.	1447 Jul 11 j 06:38	29° \mathring{S} 19°53	39.08298 AU	max. Earth dist.	1455 Jul 24 j 02:46	11° \mathring{N} 53°00	37.01092 AU
conjunction	1447 Jul 14 j 06:55	29° \mathring{S} 25°06	4°54'05	conjunction	1455 Jul 27 j 07:52	11° \mathring{N} 58°58	8°17'31
minimum elong	1447 Jul 14 j 06:45	29° \mathring{S} 25°05	4°54'04	minimum elong	1455 Jul 27 j 07:35	11° \mathring{N} 58°57	8°17'30
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retrograde	1447 Oct 24 j 17:19	1° \mathring{N} 19°16		opposition	1456 Jan 24 j 08:05	12° \mathring{N} 49°24	8°59'12
opposition	1448 Jan 11 j 21:52	0° \mathring{N} 09°55	5°23'05	min. Earth dist.	1456 Jan 27 j 04:42	12° \mathring{N} 45°15	34.90551 AU
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	1448 Jan 19 j 02:51	30° \mathring{R} \mathring{S}		max. Earth dist.	1456 Jul 25 j 03:20	13° \mathring{N} 34°18	36.75500 AU
direct	1448 Apr 02 j 04:48	28° \mathring{S} 58°41					
	1448 Jun 12 j 12:55	0° \mathring{N}		conjunction	1456 Jul 28 j 07:50	13° \mathring{N} 40°17	8°42'59
max. Earth dist.	1448 Jul 12 j 00:07	0° \mathring{N} 49°11	38.82289 AU	minimum elong	1456 Jul 28 j 07:32	13° \mathring{N} 40°16	8°42'59
					1456 Sep 12 j 05:20	15° \mathring{N}	
conjunction	1448 Jul 15 j 01:57	0° \mathring{N} 54°34	5°19'15	retrograde	1456 Nov 07 j 21:23	15° \mathring{N} 44°21	
minimum elong	1448 Jul 15 j 01:47	0° \mathring{N} 54°33	5°19'15		1457 Jan 05 j 06:33	15° \mathring{R} \mathring{N}	
retrograde	1448 Oct 25 j 10:59	2° \mathring{N} 49°43		opposition	1457 Jan 25 j 06:21	14° \mathring{N} 31°34	9°26'17
opposition	1449 Jan 12 j 15:11	1° \mathring{N} 39°59	5°49'48	min. Earth dist.	1457 Jan 28 j 02:46	14° \mathring{N} 27°23	34.65200 AU

direct	1457 Apr 16 j 03:27	13°♏16'20		opposition	1465 Feb 08 j 18:39	29°♏13'02	12°56'06
	1457 Jul 17 j 23:06	15°♏		min. Earth dist.	1465 Feb 11 j 16:03	29°♏08'34	32.67341 AU
max. Earth dist.	1457 Jul 27 j 02:25	15°♏17'11	36.49914 AU	direct	1465 Apr 30 j 07:26	27°♏53'54	
					1465 Aug 08 j 12:52	0°♐	
conjunction	1457 Jul 30 j 08:33	15°♏23'21	9°08'22	max. Earth dist.	1465 Aug 11 j 11:13	0°♐05'59	34.50777 AU
minimum elong	1457 Jul 30 j 08:15	15°♏23'20	9°08'21				
retrograde	1457 Nov 10 j 00:16	17°♏28'40		conjunction	1465 Aug 14 j 15:55	0°♐12'33	12°23'19
opposition	1458 Jan 27 j 05:11	16°♏15'28	9°53'17	minimum elong	1465 Aug 14 j 15:33	0°♐12'31	12°23'18
min. Earth dist.	1458 Jan 30 j 02:35	16°♏11'13	34.39875 AU	retrograde	1465 Nov 25 j 11:58	2°♐28'27	
	1458 Apr 14 j 00:56	15°♐♏		opposition	1466 Feb 10 j 23:44	1°♐11'51	13°20'34
direct	1458 Apr 18 j 00:20	14°♏59'46		min. Earth dist.	1466 Feb 13 j 20:42	1°♐07'23	32.44177 AU
	1458 Apr 22 j 00:56	15°♏			1466 Apr 09 j 17:23	30°♐♏	
max. Earth dist.	1458 Jul 29 j 04:14	17°♏01'58	36.24338 AU	direct	1466 May 02 j 11:16	29°♏52'17	
					1466 May 25 j 03:34	0°♐	
conjunction	1458 Aug 01 j 10:11	17°♏08'11	9°33'38	max. Earth dist.	1466 Aug 13 j 18:23	2°♐05'51	34.27550 AU
minimum elong	1458 Aug 01 j 09:51	17°♏08'09	9°33'38				
retrograde	1458 Nov 12 j 02:41	19°♏14'44		conjunction	1466 Aug 16 j 23:12	2°♐12'28	12°45'49
opposition	1459 Jan 29 j 04:57	18°♏01'08	10°20'11	minimum elong	1466 Aug 16 j 22:48	2°♐12'26	12°45'49
min. Earth dist.	1459 Feb 01 j 02:57	17°♏56'48	34.14581 AU	retrograde	1466 Nov 27 j 22:16	4°♐29'49	
direct	1459 Apr 20 j 00:43	16°♏44'57		opposition	1467 Feb 13 j 05:40	3°♐12'49	13°44'26
max. Earth dist.	1459 Jul 31 j 05:26	18°♏48'25	35.98825 AU	min. Earth dist.	1467 Feb 16 j 01:52	3°♐08'23	32.21488 AU
				direct	1467 May 04 j 15:56	1°♐52'49	
conjunction	1459 Aug 03 j 12:13	18°♏54'45	9°58'46	max. Earth dist.	1467 Aug 16 j 03:27	4°♐07'59	34.04758 AU
minimum elong	1459 Aug 03 j 11:53	18°♏54'44	9°58'45				
retrograde	1459 Nov 14 j 07:09	21°♏02'35		conjunction	1467 Aug 19 j 07:21	4°♐14'35	13°07'43
opposition	1460 Jan 31 j 05:16	19°♏48'33	10°46'55	minimum elong	1467 Aug 19 j 06:58	4°♐14'33	13°07'42
min. Earth dist.	1460 Feb 03 j 03:01	19°♏44'13	33.89388 AU	retrograde	1467 Nov 30 j 08:00	6°♐33'22	
direct	1460 Apr 21 j 01:10	18°♏31'52		opposition	1468 Feb 15 j 12:43	5°♐16'00	14°07'39
max. Earth dist.	1460 Aug 01 j 08:02	20°♏36'41	35.73417 AU	min. Earth dist.	1468 Feb 18 j 09:12	5°♐11'31	31.99221 AU
				direct	1468 May 05 j 22:58	3°♐55'35	
conjunction	1460 Aug 04 j 15:06	20°♏43'06	10°23'41	max. Earth dist.	1468 Aug 17 j 13:03	6°♐12'17	33.82397 AU
minimum elong	1460 Aug 04 j 14:45	20°♏43'04	10°23'41				
retrograde	1460 Nov 15 j 09:27	22°♏52'13		conjunction	1468 Aug 20 j 16:19	6°♐18'54	13°28'56
opposition	1461 Feb 01 j 06:25	21°♏37'44	11°13'26	minimum elong	1468 Aug 20 j 15:55	6°♐18'52	13°28'57
min. Earth dist.	1461 Feb 04 j 05:13	21°♏33'18	33.64351 AU	retrograde	1468 Dec 01 j 19:47	8°♐39'07	
direct	1461 Apr 23 j 01:35	20°♏20'34		opposition	1469 Feb 16 j 20:25	7°♐21'21	14°30'09
max. Earth dist.	1461 Aug 03 j 12:04	22°♏26'47	35.48210 AU	min. Earth dist.	1469 Feb 19 j 15:36	7°♐16'56	31.77369 AU
				direct	1469 May 08 j 07:10	6°♐00'30	
conjunction	1461 Aug 06 j 18:35	22°♏33'14	10°48'21	max. Earth dist.	1469 Aug 19 j 23:01	8°♐18'42	33.60428 AU
minimum elong	1461 Aug 06 j 18:14	22°♏33'12	10°48'21				
retrograde	1461 Nov 17 j 13:26	24°♏43'39		conjunction	1469 Aug 23 j 02:13	8°♐25'24	13°49'26
opposition	1462 Feb 03 j 08:12	23°♏28'44	11°39'41	minimum elong	1469 Aug 23 j 01:51	8°♐25'22	13°49'26
min. Earth dist.	1462 Feb 06 j 06:05	23°♏24'19	33.39549 AU	retrograde	1469 Dec 04 j 05:40	10°♐47'01	
direct	1462 Apr 25 j 03:36	22°♏11'03		opposition	1470 Feb 19 j 05:16	9°♐28'52	14°51'51
max. Earth dist.	1462 Aug 05 j 15:32	24°♏18'36	35.23254 AU	min. Earth dist.	1470 Feb 22 j 01:07	9°♐24'22	31.55909 AU
				direct	1470 May 10 j 13:52	8°♐07'35	
conjunction	1462 Aug 08 j 22:50	24°♏25'10	11°12'43	max. Earth dist.	1470 Aug 22 j 11:11	10°♐27'22	33.38872 AU
minimum elong	1462 Aug 08 j 22:28	24°♏25'09	11°12'44				
retrograde	1462 Nov 19 j 17:50	26°♏36'56		conjunction	1470 Aug 25 j 12:59	10°♐34'00	14°09'09
opposition	1463 Feb 05 j 10:51	25°♏21'34	12°05'35	minimum elong	1470 Aug 25 j 12:36	10°♐33'58	14°09'09
min. Earth dist.	1463 Feb 08 j 09:34	25°♏17'04	33.15063 AU	retrograde	1470 Dec 06 j 17:06	12°♐56'59	
direct	1463 Apr 27 j 02:52	24°♏03'23		opposition	1471 Feb 21 j 14:54	11°♐38'27	15°12'41
max. Earth dist.	1463 Aug 07 j 22:02	26°♏12'28	34.98656 AU	min. Earth dist.	1471 Feb 24 j 09:22	11°♐34'01	31.34860 AU
				direct	1471 May 12 j 23:30	10°♐16'44	
conjunction	1463 Aug 11 j 03:50	26°♏18'59	11°36'43	max. Earth dist.	1471 Aug 24 j 22:24	12°♐37'56	33.17751 AU
minimum elong	1463 Aug 11 j 03:29	26°♏18'57	11°36'42				
retrograde	1463 Nov 21 j 22:03	28°♏32'06		conjunction	1471 Aug 28 j 00:30	12°♐44'39	14°28'00
opposition	1464 Feb 07 j 14:22	27°♏16'18	12°31'05	minimum elong	1471 Aug 28 j 00:08	12°♐44'37	14°28'00
min. Earth dist.	1464 Feb 10 j 11:50	27°♏11'52	32.90970 AU	retrograde	1471 Dec 09 j 05:36	15°♐09'01	
direct	1464 Apr 28 j 06:00	25°♏57'39		opposition	1472 Feb 24 j 01:31	13°♐50'05	15°32'35
max. Earth dist.	1464 Aug 09 j 02:58	28°♏08'07	34.74484 AU	min. Earth dist.	1472 Feb 26 j 20:03	13°♐45'37	31.14276 AU
				direct	1472 May 14 j 06:54	12°♐27'54	
conjunction	1464 Aug 12 j 09:19	28°♏14'44	12°00'16	max. Earth dist.	1472 Aug 26 j 12:38	14°♐50'41	32.97126 AU
minimum elong	1464 Aug 12 j 08:56	28°♏14'43	12°00'16				
	1464 Oct 10 j 12:15	0°♐		conjunction	1472 Aug 29 j 12:44	14°♐57'17	14°45'55
retrograde	1464 Nov 23 j 05:19	0°♐29'15		minimum elong	1472 Aug 29 j 12:21	14°♐57'15	14°45'55
	1465 Jan 06 j 23:28	30°♐♏		retrograde	1472 Dec 10 j 16:50	17°♐23'01	

opposition	1473 Feb 25 j 12:57	16° $\mathring{\text{M}}$ 03'40	15°51'27	opposition	1481 Mar 16 j 14:16	4° $\mathring{\text{U}}$ 59'35	17°33'41
min. Earth dist.	1473 Feb 28 j 06:14	15° $\mathring{\text{M}}$ 59'15	30.94194 AU	min. Earth dist.	1481 Mar 18 j 19:38	4° $\mathring{\text{U}}$ 55'51	29.60363 AU
direct	1473 May 16 j 18:06	14° $\mathring{\text{M}}$ 41'03		direct	1481 Jun 04 j 11:45	3° $\mathring{\text{U}}$ 34'24	
max. Earth dist.	1473 Aug 29 j 01:40	17° $\mathring{\text{M}}$ 05'13	32.77057 AU	max. Earth dist.	1481 Sep 18 j 02:51	6° $\mathring{\text{U}}$ 09'53	31.44946 AU
conjunction	1473 Sep 01 j 01:42	17° $\mathring{\text{M}}$ 11'52	15°02'48	conjunction	1481 Sep 20 j 10:14	6° $\mathring{\text{U}}$ 15'20	16°30'34
minimum elong	1473 Sep 01 j 01:21	17° $\mathring{\text{M}}$ 11'50	15°02'47	minimum elong	1481 Sep 20 j 10:05	6° $\mathring{\text{U}}$ 15'19	16°30'33
retrograde	1473 Dec 13 j 06:41	19° $\mathring{\text{M}}$ 38'54		retrograde	1482 Jan 01 j 23:24	8° $\mathring{\text{U}}$ 51'45	
opposition	1474 Feb 28 j 01:03	18° $\mathring{\text{M}}$ 19'09	16°09'12	opposition	1482 Mar 19 j 08:54	7° $\mathring{\text{U}}$ 29'38	17°39'09
min. Earth dist.	1474 Mar 02 j 17:30	18° $\mathring{\text{M}}$ 14'46	30.74704 AU	min. Earth dist.	1482 Mar 21 j 11:51	7° $\mathring{\text{U}}$ 26'04	29.47420 AU
direct	1474 May 19 j 04:33	16° $\mathring{\text{M}}$ 56'05		direct	1482 Jun 07 j 06:48	6° $\mathring{\text{U}}$ 04'16	
max. Earth dist.	1474 Aug 31 j 17:51	19° $\mathring{\text{M}}$ 21'50	32.57617 AU	max. Earth dist.	1482 Sep 20 j 22:44	8° $\mathring{\text{U}}$ 40'47	31.32344 AU
conjunction	1474 Sep 03 j 15:32	19° $\mathring{\text{M}}$ 28'19	15°18'34	conjunction	1482 Sep 23 j 05:05	8° $\mathring{\text{U}}$ 46'09	16°34'34
minimum elong	1474 Sep 03 j 15:12	19° $\mathring{\text{M}}$ 28'18	15°18'35	minimum elong	1482 Sep 23 j 04:57	8° $\mathring{\text{U}}$ 46'08	16°34'34
retrograde	1474 Dec 15 j 19:56	21° $\mathring{\text{M}}$ 56'39		retrograde	1483 Jan 04 j 19:34	11° $\mathring{\text{U}}$ 23'28	
opposition	1475 Mar 02 j 14:17	20° $\mathring{\text{M}}$ 36'30	16°25'43	opposition	1483 Mar 22 j 04:22	10° $\mathring{\text{U}}$ 01'09	17°42'47
min. Earth dist.	1475 Mar 05 j 05:49	20° $\mathring{\text{M}}$ 32'10	30.55870 AU	min. Earth dist.	1483 Mar 24 j 05:40	9° $\mathring{\text{U}}$ 57'41	29.35316 AU
direct	1475 May 21 j 16:39	19° $\mathring{\text{M}}$ 13'02		direct	1483 Jun 09 j 23:50	8° $\mathring{\text{U}}$ 35'35	
max. Earth dist.	1475 Sep 03 j 09:07	21° $\mathring{\text{M}}$ 40'11	32.38912 AU	max. Earth dist.	1483 Sep 23 j 21:28	11° $\mathring{\text{U}}$ 13'16	31.20611 AU
conjunction	1475 Sep 06 j 05:44	21° $\mathring{\text{M}}$ 46'37	15°33'08	conjunction	1483 Sep 26 j 00:21	11° $\mathring{\text{U}}$ 18'19	16°36'50
minimum elong	1475 Sep 06 j 05:25	21° $\mathring{\text{M}}$ 46'36	15°33'08	minimum elong	1483 Sep 26 j 00:16	11° $\mathring{\text{U}}$ 18'19	16°36'49
retrograde	1475 Dec 18 j 12:17	24° $\mathring{\text{M}}$ 16'14		retrograde	1484 Jan 07 j 14:22	13° $\mathring{\text{U}}$ 56'27	
opposition	1476 Mar 04 j 04:12	22° $\mathring{\text{M}}$ 55'42	16°40'53	opposition	1484 Mar 24 j 00:27	12° $\mathring{\text{U}}$ 33'56	17°44'33
min. Earth dist.	1476 Mar 06 j 17:37	22° $\mathring{\text{M}}$ 51'29	30.37803 AU	min. Earth dist.	1484 Mar 25 j 23:44	12° $\mathring{\text{U}}$ 30'36	29.24045 AU
direct	1476 May 23 j 05:58	21° $\mathring{\text{M}}$ 31'50		direct	1484 Jun 11 j 18:51	11° $\mathring{\text{U}}$ 08'12	
max. Earth dist.	1476 Sep 05 j 02:31	24° $\mathring{\text{M}}$ 00'30	32.21013 AU	max. Earth dist.	1484 Sep 25 j 18:26	13° $\mathring{\text{U}}$ 46'42	31.09770 AU
conjunction	1476 Sep 07 j 20:53	24° $\mathring{\text{M}}$ 06'47	15°46'24	conjunction	1484 Sep 27 j 19:58	13° $\mathring{\text{U}}$ 51'39	16°37'20
minimum elong	1476 Sep 07 j 20:34	24° $\mathring{\text{M}}$ 06'45	15°46'25	minimum elong	1484 Sep 27 j 19:56	13° $\mathring{\text{U}}$ 51'39	16°37'20
retrograde	1476 Dec 20 j 03:54	26° $\mathring{\text{M}}$ 37'38		retrograde	1485 Jan 09 j 10:22	16° $\mathring{\text{U}}$ 30'29	
opposition	1477 Mar 06 j 19:00	25° $\mathring{\text{M}}$ 16'45	16°54'38	opposition	1485 Mar 26 j 20:48	15° $\mathring{\text{U}}$ 07'46	17°44'22
min. Earth dist.	1477 Mar 09 j 07:34	25° $\mathring{\text{M}}$ 12'34	30.20564 AU	min. Earth dist.	1485 Mar 28 j 17:41	15° $\mathring{\text{U}}$ 04'37	29.13662 AU
direct	1477 May 25 j 20:19	23° $\mathring{\text{M}}$ 52'33		direct	1485 Jun 14 j 14:44	13° $\mathring{\text{U}}$ 41'52	
max. Earth dist.	1477 Sep 07 j 20:11	26° $\mathring{\text{M}}$ 22'39	32.04010 AU	max. Earth dist.	1485 Sep 28 j 18:04	16° $\mathring{\text{U}}$ 21'20	30.99857 AU
conjunction	1477 Sep 10 j 12:38	26° $\mathring{\text{M}}$ 28'48	15°58'17	conjunction	1485 Sep 30 j 16:07	16° $\mathring{\text{U}}$ 25'57	16°36'01
minimum elong	1477 Sep 10 j 12:22	26° $\mathring{\text{M}}$ 28'46	15°58'16	minimum elong	1485 Sep 30 j 16:06	16° $\mathring{\text{U}}$ 25'57	16°36'00
retrograde	1477 Dec 22 j 21:51	29° $\mathring{\text{M}}$ 00'51		retrograde	1486 Jan 12 j 05:06	19° $\mathring{\text{U}}$ 05'23	
opposition	1478 Mar 09 j 10:34	27° $\mathring{\text{M}}$ 39'40	17°06'52	opposition	1486 Mar 29 j 17:52	17° $\mathring{\text{U}}$ 42'28	17°42'13
min. Earth dist.	1478 Mar 11 j 20:19	27° $\mathring{\text{M}}$ 35'41	30.04203 AU	min. Earth dist.	1486 Mar 31 j 13:00	17° $\mathring{\text{U}}$ 39'26	29.04191 AU
direct	1478 May 28 j 12:26	26° $\mathring{\text{M}}$ 15'10		direct	1486 Jun 17 j 11:32	16° $\mathring{\text{U}}$ 16'25	
max. Earth dist.	1478 Sep 10 j 14:32	28° $\mathring{\text{M}}$ 46'41	31.87902 AU	max. Earth dist.	1486 Oct 01 j 16:07	18° $\mathring{\text{U}}$ 56'33	30.90937 AU
conjunction	1478 Sep 13 j 05:07	28° $\mathring{\text{M}}$ 52'42	16°08'42	conjunction	1486 Oct 03 j 12:11	19° $\mathring{\text{U}}$ 00'59	16°32'50
minimum elong	1478 Sep 13 j 04:52	28° $\mathring{\text{M}}$ 52'40	16°08'43	minimum elong	1486 Oct 03 j 12:13	19° $\mathring{\text{U}}$ 00'59	16°32'51
	1478 Oct 13 j 07:41	0° $\mathring{\text{U}}$		retrograde	1487 Jan 15 j 02:30	21° $\mathring{\text{U}}$ 40'55	
retrograde	1478 Dec 25 j 15:02	1° $\mathring{\text{U}}$ 25'56		opposition	1487 Apr 01 j 15:10	20° $\mathring{\text{U}}$ 17'49	17°38'03
opposition	1479 Mar 12 j 03:04	0° $\mathring{\text{U}}$ 04'29	17°17'29	min. Earth dist.	1487 Apr 03 j 06:54	20° $\mathring{\text{U}}$ 15'01	28.95720 AU
	1479 Mar 14 j 19:47	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$		direct	1487 Jun 20 j 08:21	18° $\mathring{\text{U}}$ 51'39	
min. Earth dist.	1479 Mar 14 j 12:06	0° $\mathring{\text{U}}$ 00'32	29.88726 AU	max. Earth dist.	1487 Oct 04 j 16:07	21° $\mathring{\text{U}}$ 32'30	30.83073 AU
direct	1479 May 31 j 02:48	28° $\mathring{\text{M}}$ 39'44					
	1479 Aug 11 j 13:48	0° $\mathring{\text{U}}$		conjunction	1487 Oct 06 j 08:34	21° $\mathring{\text{U}}$ 36'35	16°27'45
max. Earth dist.	1479 Sep 13 j 10:26	1° $\mathring{\text{U}}$ 12'41	31.72712 AU	minimum elong	1487 Oct 06 j 08:38	21° $\mathring{\text{U}}$ 36'35	16°27'45
				retrograde	1488 Jan 17 j 21:42	24° $\mathring{\text{U}}$ 16'54	
conjunction	1479 Sep 15 j 22:13	1° $\mathring{\text{U}}$ 18'28	16°17'35	opposition	1488 Apr 03 j 12:55	22° $\mathring{\text{U}}$ 53'39	17°31'48
minimum elong	1479 Sep 15 j 22:00	1° $\mathring{\text{U}}$ 18'27	16°17'35	min. Earth dist.	1488 Apr 05 j 02:45	22° $\mathring{\text{U}}$ 50'59	28.88318 AU
retrograde	1479 Dec 28 j 10:28	3° $\mathring{\text{U}}$ 52'50		direct	1488 Jun 22 j 06:13	21° $\mathring{\text{U}}$ 27'23	
opposition	1480 Mar 13 j 20:15	2° $\mathring{\text{U}}$ 31'09	17°26'27	max. Earth dist.	1488 Oct 06 j 15:17	24° $\mathring{\text{U}}$ 08'46	30.76365 AU
min. Earth dist.	1480 Mar 16 j 02:32	2° $\mathring{\text{U}}$ 27'22	29.74121 AU				
direct	1480 Jun 01 j 20:17	1° $\mathring{\text{U}}$ 06'11		conjunction	1488 Oct 08 j 04:50	24° $\mathring{\text{U}}$ 12'34	16°20'45
max. Earth dist.	1480 Sep 15 j 05:24	3° $\mathring{\text{U}}$ 40'21	31.58396 AU	minimum elong	1488 Oct 08 j 04:57	24° $\mathring{\text{U}}$ 12'35	16°20'46
				retrograde	1489 Jan 19 j 19:07	26° $\mathring{\text{U}}$ 53'11	
conjunction	1480 Sep 17 j 15:51	3° $\mathring{\text{U}}$ 46'03	16°24'54	opposition	1489 Apr 06 j 10:46	25° $\mathring{\text{U}}$ 29'48	17°23'28
minimum elong	1480 Sep 17 j 15:39	3° $\mathring{\text{U}}$ 46'02	16°24'54	min. Earth dist.	1489 Apr 07 j 20:35	25° $\mathring{\text{U}}$ 27'25	28.82059 AU
retrograde	1480 Dec 30 j 05:18	6° $\mathring{\text{U}}$ 21'30		direct	1489 Jun 25 j 05:40	24° $\mathring{\text{U}}$ 03'29	

max. Earth dist.	1489 Oct 09 j 15:13	26° 2 45'23	30.70850 AU	opposition	1497 Apr 27 j 20:44	16° 1 17'42	15°04'09
				min. Earth dist.	1497 Apr 28 j 06:52	16° 1 17'00	28.73709 AU
conjunction	1489 Oct 11 j 01:19	26° 2 48'50	16°11'49		1497 Jun 25 j 05:02	15° 8 1	
minimum elong	1489 Oct 11 j 01:27	26° 2 48'50	16°11'48	direct	1497 Jul 16 j 17:45	14° 1 52'25	
retrograde	1490 Jan 22 j 15:08	29° 2 29'39			1497 Aug 06 j 21:01	15° 1	
opposition	1490 Apr 09 j 08:55	28° 2 06'12	17°13'01				
min. Earth dist.	1490 Apr 10 j 16:37	28° 2 03'58	28.76996 AU	conjunction	1497 Oct 31 j 16:32	17° 1 35'07	13°53'56
direct	1490 Jun 28 j 02:45	26° 2 39'53		minimum elong	1497 Oct 31 j 16:54	17° 1 35'09	13°53'56
				max. Earth dist.	1497 Oct 31 j 08:04	17° 1 34'16	30.69202 AU
conjunction	1490 Oct 13 j 21:47	29° 2 25'16	16°00'55	retrograde	1498 Feb 12 j 08:29	20° 1 14'09	
minimum elong	1490 Oct 13 j 21:59	29° 2 25'17	16°00'56	opposition	1498 Apr 30 j 18:11	18° 1 51'15	14°38'34
max. Earth dist.	1490 Oct 12 j 15:22	29° 2 22'11	30.66591 AU	min. Earth dist.	1498 May 01 j 00:25	18° 1 50'49	28.77460 AU
	1490 Oct 28 j 06:59	0° 1		direct	1498 Jul 19 j 15:03	17° 1 26'09	
retrograde	1491 Jan 25 j 12:53	2° 1 06'12					
opposition	1491 Apr 12 j 07:12	0° 1 42'44	17°00'29	conjunction	1498 Nov 03 j 11:05	20° 1 08'03	13°29'18
min. Earth dist.	1491 Apr 13 j 10:45	0° 1 40'47	28.73145 AU	minimum elong	1498 Nov 03 j 11:28	20° 1 08'05	13°29'18
	1491 May 08 j 15:56	30° 8 2		max. Earth dist.	1498 Nov 03 j 06:40	20° 1 07'36	30.73834 AU
direct	1491 Jul 01 j 02:43	29° 2 16'29		retrograde	1499 Feb 15 j 00:29	22° 1 46'26	
	1491 Aug 21 j 06:41	0° 1		opposition	1499 May 03 j 15:28	21° 1 23'39	14°11'26
				min. Earth dist.	1499 May 03 j 19:35	21° 1 23'22	28.82246 AU
conjunction	1491 Oct 16 j 18:03	2° 1 01'49	15°48'07	direct	1499 Jul 22 j 12:35	19° 1 58'48	
minimum elong	1491 Oct 16 j 18:15	2° 1 01'50	15°48'07				
max. Earth dist.	1491 Oct 15 j 14:40	1° 1 59'02	30.63563 AU	conjunction	1499 Nov 06 j 04:47	22° 1 39'46	13°03'16
retrograde	1492 Jan 28 j 10:10	4° 1 42'46		minimum elong	1499 Nov 06 j 05:09	22° 1 39'48	13°03'16
opposition	1492 Apr 14 j 05:38	3° 1 19'19	16°45'53	max. Earth dist.	1499 Nov 06 j 02:56	22° 1 39'35	30.79540 AU
min. Earth dist.	1492 Apr 15 j 06:43	3° 1 17'33	28.70494 AU	retrograde	1500 Feb 17 j 18:17	25° 1 17'25	
direct	1492 Jul 03 j 00:42	1° 1 53'09		opposition	1500 May 05 j 12:04	23° 1 54'46	13°42'49
				min. Earth dist.	1500 May 05 j 11:57	23° 1 54'47	28.88109 AU
conjunction	1492 Oct 18 j 14:25	4° 1 38'20	15°33'26	direct	1500 Jul 24 j 10:41	22° 1 30'08	
minimum elong	1492 Oct 18 j 14:40	4° 1 38'21	15°33'26				
max. Earth dist.	1492 Oct 17 j 15:03	4° 1 35'58	30.61746 AU	conjunction	1500 Nov 07 j 22:06	25° 1 10'08	12°35'55
retrograde	1493 Jan 30 j 06:15	7° 1 19'12		minimum elong	1500 Nov 07 j 22:30	25° 1 10'11	12°35'54
opposition	1493 Apr 17 j 03:53	5° 1 55'48	16°29'17	max. Earth dist.	1500 Nov 08 j 00:10	25° 1 10'20	30.86336 AU
min. Earth dist.	1493 Apr 18 j 01:27	5° 1 54'17	28.68985 AU	retrograde	1501 Feb 19 j 10:07	27° 1 46'59	
direct	1493 Jul 06 j 00:18	4° 1 29'47		opposition	1501 May 08 j 08:12	26° 1 24'30	13°12'48
				min. Earth dist.	1501 May 08 j 05:47	26° 1 24'40	28.95095 AU
conjunction	1493 Oct 21 j 10:35	7° 1 14'42	15°16'56	direct	1501 Jul 27 j 05:49	25° 1 00'08	
minimum elong	1493 Oct 21 j 10:51	7° 1 14'43	15°16'55				
max. Earth dist.	1493 Oct 20 j 13:34	7° 1 12'34	30.61075 AU	conjunction	1501 Nov 10 j 14:45	27° 1 39'04	12°07'19
retrograde	1494 Feb 02 j 03:41	9° 1 55'24		minimum elong	1501 Nov 10 j 15:09	27° 1 39'07	12°07'19
opposition	1494 Apr 20 j 02:19	8° 1 32'04	16°10'44	max. Earth dist.	1501 Nov 10 j 20:04	27° 1 39'36	30.94291 AU
min. Earth dist.	1494 Apr 20 j 21:05	8° 1 30'45	28.68593 AU		1502 Jan 23 j 17:35	0° 2	
direct	1494 Jul 08 j 22:02	7° 1 06'12		retrograde	1502 Feb 22 j 02:59	0° 2 15'04	
					1502 Mar 24 j 10:07	30° 8 1	
conjunction	1494 Oct 24 j 06:33	9° 1 50'44	14°58'39	opposition	1502 May 11 j 03:50	28° 1 52'46	12°41'30
minimum elong	1494 Oct 24 j 06:52	9° 1 50'46	14°58'39	min. Earth dist.	1502 May 10 j 21:00	28° 1 53'14	29.03237 AU
max. Earth dist.	1494 Oct 23 j 13:49	9° 1 49'02	30.61519 AU	direct	1502 Jul 30 j 03:47	27° 1 28'42	
retrograde	1495 Feb 04 j 23:10	12° 1 31'10			1502 Nov 10 j 11:58	0° 2	
opposition	1495 Apr 23 j 00:45	11° 1 07'56	15°50'19				
min. Earth dist.	1495 Apr 23 j 16:36	11° 1 06'49	28.69259 AU	conjunction	1502 Nov 13 j 06:41	0° 2 06'33	11°37'33
direct	1495 Jul 11 j 21:26	9° 1 42'15		minimum elong	1502 Nov 13 j 07:06	0° 2 06'36	11°37'33
max. Earth dist.	1495 Oct 26 j 11:34	12° 1 24'47	30.63036 AU	max. Earth dist.	1502 Nov 13 j 15:25	0° 2 07'25	31.03406 AU
				retrograde	1503 Feb 24 j 19:38	2° 2 41'39	
conjunction	1495 Oct 27 j 02:13	12° 1 26'16	14°38'41	opposition	1503 May 13 j 23:02	1° 2 19'35	12°09'00
minimum elong	1495 Oct 27 j 02:32	12° 1 26'18	14°38'41	min. Earth dist.	1503 May 13 j 13:22	1° 2 20'14	29.12555 AU
	1496 Jan 19 j 23:12	15° 1			1503 Jul 17 j 01:00	30° 8 1	
retrograde	1496 Feb 07 j 19:10	15° 1 06'20		direct	1503 Aug 01 j 23:08	29° 1 55'51	
	1496 Feb 26 j 20:31	15° 8 1			1503 Aug 17 j 19:01	0° 2	
opposition	1496 Apr 24 j 22:47	13° 1 43'12	15°28'06				
min. Earth dist.	1496 Apr 25 j 11:17	13° 1 42'20	28.70981 AU	conjunction	1503 Nov 15 j 22:08	2° 2 32'34	11°06'44
direct	1496 Jul 13 j 19:15	12° 1 17'42		minimum elong	1503 Nov 15 j 22:31	2° 2 32'36	11°06'45
				max. Earth dist.	1503 Nov 16 j 10:33	2° 2 33'47	31.13687 AU
conjunction	1496 Oct 28 j 21:39	15° 1 01'08	14°17'05	retrograde	1504 Feb 27 j 10:35	5° 2 06'43	
minimum elong	1496 Oct 28 j 22:01	15° 1 01'10	14°17'05	opposition	1504 May 15 j 17:22	3° 2 44'55	11°35'25
max. Earth dist.	1496 Oct 28 j 11:12	15° 1 00'04	30.65604 AU	min. Earth dist.	1504 May 15 j 04:03	3° 2 45'49	29.23001 AU
	1496 Oct 28 j 10:29	15° 1		direct	1504 Aug 03 j 19:24	2° 2 21'33	
retrograde	1497 Feb 09 j 12:37	17° 1 40'43					

conjunction	1504 Nov 17 j 12:49	4°♂57'05	10°34'58	retrograde	1513 Mar 18 j 18:33	25°♂37'40	
minimum elong	1504 Nov 17 j 13:13	4°♂57'08	10°34'58	min. Earth dist.	1513 Jun 04 j 20:46	24°♂20'55	30.57271 AU
max. Earth dist.	1504 Nov 18 j 03:49	4°♂58'33	31.25060 AU	opposition	1513 Jun 06 j 10:01	24°♂18'31	6°04'02
retrograde	1505 Mar 01 j 02:16	7°♂30'16		direct	1513 Aug 25 j 19:30	22°♂58'39	
opposition	1505 May 18 j 11:15	6°♂08'45	11°00'53				
min. Earth dist.	1505 May 17 j 18:51	6°♂09'51	29.34529 AU	conjunction	1513 Dec 07 j 18:51	25°♂22'11	5°23'47
direct	1505 Aug 06 j 13:04	4°♂45'47		minimum elong	1513 Dec 07 j 19:04	25°♂22'12	5°23'47
				max. Earth dist.	1513 Dec 09 j 09:02	25°♂25'39	32.65677 AU
conjunction	1505 Nov 20 j 02:57	7°♂20'06	10°02'22	retrograde	1514 Mar 21 j 03:45	27°♂45'09	
minimum elong	1505 Nov 20 j 03:19	7°♂20'08	10°02'23	min. Earth dist.	1514 Jun 07 j 05:48	26°♂28'50	30.75963 AU
max. Earth dist.	1505 Nov 20 j 21:55	7°♂21'56	31.37463 AU	opposition	1514 Jun 08 j 21:35	26°♂26'17	5°25'50
retrograde	1506 Mar 03 j 16:18	9°♂52'15		direct	1514 Aug 28 j 07:17	25°♂06'49	
min. Earth dist.	1506 May 20 j 09:27	8°♂32'19	29.47041 AU				
opposition	1506 May 21 j 04:33	8°♂31'02	10°25'31	conjunction	1514 Dec 10 j 02:35	27°♂28'58	4°48'02
direct	1506 Aug 09 j 09:13	7°♂08'29		minimum elong	1514 Dec 10 j 02:47	27°♂28'59	4°48'02
				max. Earth dist.	1514 Dec 11 j 20:01	27°♂32'43	32.84957 AU
conjunction	1506 Nov 22 j 16:20	9°♂41'33	9°29'03	retrograde	1515 Mar 23 j 11:07	29°♂50'45	
minimum elong	1506 Nov 22 j 16:42	9°♂41'35	9°29'03	min. Earth dist.	1515 Jun 09 j 14:17	28°♂34'54	30.95420 AU
max. Earth dist.	1506 Nov 23 j 13:14	9°♂43'33	31.50811 AU	opposition	1515 Jun 11 j 08:18	28°♂32'13	4°47'39
retrograde	1507 Mar 06 j 06:32	12°♂12'39		direct	1515 Aug 30 j 20:25	27°♂13'09	
opposition	1507 May 23 j 21:11	10°♂51'44	9°49'27				
min. Earth dist.	1507 May 22 j 22:34	10°♂53'15	29.60492 AU	conjunction	1515 Dec 12 j 09:21	29°♂33'58	4°12'20
direct	1507 Aug 12 j 01:57	9°♂29'35		minimum elong	1515 Dec 12 j 09:31	29°♂33'59	4°12'20
				max. Earth dist.	1515 Dec 14 j 04:15	29°♂37'49	33.04972 AU
conjunction	1507 Nov 25 j 05:10	12°♂01'22	8°55'07		1515 Dec 24 j 13:14	0°♂	
minimum elong	1507 Nov 25 j 05:30	12°♂01'24	8°55'07	retrograde	1516 Mar 24 j 19:01	1°♂54'36	
max. Earth dist.	1507 Nov 26 j 05:48	12°♂03'43	31.65031 AU	min. Earth dist.	1516 Jun 10 j 21:00	0°♂39'16	31.15629 AU
retrograde	1508 Mar 07 j 17:09	14°♂31'22		opposition	1516 Jun 12 j 18:13	0°♂36'24	4°09'35
opposition	1508 May 25 j 13:13	13°♂10'46	9°12'46		1516 Jul 07 j 13:43	30°♂♂	
min. Earth dist.	1508 May 24 j 12:50	13°♂12'24	29.74780 AU	direct	1516 Sep 01 j 06:08	29°♂17'46	
direct	1508 Aug 13 j 19:28	11°♂49'01			1516 Oct 24 j 04:48	0°♂	
conjunction	1508 Nov 26 j 17:16	14°♂19'29	8°20'39	conjunction	1516 Dec 13 j 15:39	1°♂37'16	3°36'44
minimum elong	1508 Nov 26 j 17:36	14°♂19'31	8°20'38	minimum elong	1516 Dec 13 j 15:47	1°♂37'16	3°36'43
max. Earth dist.	1508 Nov 27 j 19:20	14°♂21'57	31.80045 AU	max. Earth dist.	1516 Dec 15 j 13:49	1°♂41'22	33.25683 AU
retrograde	1509 Mar 10 j 05:30	16°♂48'22		retrograde	1517 Mar 26 j 23:08	3°♂56'44	
min. Earth dist.	1509 May 27 j 00:27	15°♂29'55	29.89849 AU	min. Earth dist.	1517 Jun 13 j 04:54	2°♂41'51	31.36518 AU
opposition	1509 May 28 j 04:20	15°♂28'04	8°35'36	opposition	1517 Jun 15 j 03:26	2°♂38'55	3°31'41
direct	1509 Aug 16 j 11:22	14°♂06'42		direct	1517 Sep 03 j 17:28	1°♂20'43	
conjunction	1509 Nov 29 j 04:50	16°♂35'49	7°45'47	conjunction	1517 Dec 15 j 21:09	3°♂38'55	3°01'18
minimum elong	1509 Nov 29 j 05:09	16°♂35'51	7°45'47	minimum elong	1517 Dec 15 j 21:16	3°♂38'56	3°01'19
max. Earth dist.	1509 Nov 30 j 10:09	16°♂38'34	31.95789 AU	max. Earth dist.	1517 Dec 17 j 20:25	3°♂43'06	33.47029 AU
retrograde	1510 Mar 12 j 15:10	19°♂03'34		retrograde	1518 Mar 29 j 04:56	5°♂57'16	
opposition	1510 May 30 j 19:04	17°♂43'34	7°58'04	min. Earth dist.	1518 Jun 15 j 10:18	4°♂42'56	31.58031 AU
min. Earth dist.	1510 May 29 j 13:47	17°♂45'29	30.05647 AU	opposition	1518 Jun 17 j 11:59	4°♂39'49	2°54'02
direct	1510 Aug 19 j 02:13	16°♂22'35		direct	1518 Sep 06 j 02:46	3°♂22'05	
conjunction	1510 Dec 01 j 15:28	18°♂50'18	7°10'34	conjunction	1518 Dec 18 j 02:00	5°♂38'59	2°26'07
minimum elong	1510 Dec 01 j 15:46	18°♂50'20	7°10'34	minimum elong	1518 Dec 18 j 02:06	5°♂39'00	2°26'06
max. Earth dist.	1510 Dec 02 j 22:33	18°♂53'13	32.12233 AU	max. Earth dist.	1518 Dec 20 j 04:04	5°♂43'22	33.68922 AU
retrograde	1511 Mar 15 j 00:56	21°♂16'52		retrograde	1519 Mar 31 j 08:43	7°♂56'15	
min. Earth dist.	1511 Jun 01 j 00:10	19°♂59'18	30.22143 AU	min. Earth dist.	1519 Jun 17 j 17:26	6°♂42'19	31.80081 AU
opposition	1511 Jun 02 j 08:52	19°♂57'09	7°20'14	opposition	1519 Jun 19 j 20:00	6°♂39'09	2°16'41
direct	1511 Aug 21 j 17:28	18°♂36'33		direct	1519 Sep 08 j 10:42	5°♂21'52	
conjunction	1511 Dec 04 j 01:27	21°♂02'53	6°35'07	conjunction	1519 Dec 20 j 06:21	7°♂37'30	1°51'12
minimum elong	1511 Dec 04 j 01:43	21°♂02'54	6°35'08	minimum elong	1519 Dec 20 j 06:25	7°♂37'30	1°51'13
max. Earth dist.	1511 Dec 05 j 11:10	21°♂06'00	32.29345 AU	max. Earth dist.	1519 Dec 22 j 09:41	7°♂41'58	33.91292 AU
retrograde	1512 Mar 16 j 10:10	23°♂28'15		retrograde	1520 Apr 01 j 12:24	9°♂53'39	
min. Earth dist.	1512 Jun 02 j 11:30	22°♂11'02	30.39349 AU	min. Earth dist.	1520 Jun 18 j 21:56	8°♂40'13	32.02577 AU
opposition	1512 Jun 03 j 21:50	22°♂08'49	6°42'12	opposition	1520 Jun 21 j 02:58	8°♂36'56	1°39'42
direct	1512 Aug 23 j 05:43	20°♂48'35		direct	1520 Sep 09 j 18:24	7°♂20'05	
conjunction	1512 Dec 05 j 10:39	23°♂13'30	5°59'30	conjunction	1520 Dec 21 j 10:02	9°♂34'28	1°16'38
minimum elong	1512 Dec 05 j 10:54	23°♂13'32	5°59'30	minimum elong	1520 Dec 21 j 10:05	9°♂34'28	1°16'38
max. Earth dist.	1512 Dec 06 j 22:47	23°♂16'49	32.47158 AU	max. Earth dist.	1520 Dec 23 j 14:57	9°♂39'02	34.14036 AU

retrograde	1521 Apr 03 j 17:10	11°  49'32		retrograde	1529 Apr 17 j 20:16	26°  18'28	
min. Earth dist.	1521 Jun 21 j 03:26	10°  36'29	32.25449 AU	min. Earth dist.	1529 Jul 05 j 19:48	25°  08'22	34.18734 AU
opposition	1521 Jun 23 j 09:34	10°  33'10	1°03'08	opposition	1529 Jul 08 j 13:13	25°  04'30	-3°-30'-23
direct	1521 Sep 11 j 22:55	9°  16'44		direct	1529 Sep 27 j 10:14	23°  50'59	
conjunction	1521 Dec 23 j 13:07	11°  29'51	0°42'27	conjunction	1530 Jan 06 j 15:13	25°  54'40	-3°-33'-36
minimum elong	1521 Dec 23 j 13:09	11°  29'52	0°42'28	minimum elong	1530 Jan 06 j 15:06	25°  54'39	3°33'37
max. Earth dist.	1521 Dec 25 j 19:45	11°  34'32	34.37101 AU	max. Earth dist.	1530 Jan 09 j 07:53	25°  59'52	36.31176 AU
retrograde	1522 Apr 05 j 19:42	13°  43'50		retrograde	1530 Apr 19 j 21:03	28°  00'17	
min. Earth dist.	1522 Jun 23 j 07:54	12°  31'12	32.48612 AU	min. Earth dist.	1530 Jul 07 j 18:53	26°  50'34	34.44276 AU
opposition	1522 Jun 25 j 15:27	12°  27'48	0°27'01	opposition	1530 Jul 10 j 13:55	26°  46'39	-4°-1'-48
direct	1522 Sep 14 j 05:32	11°  11'46		direct	1530 Sep 29 j 08:50	25°  33'30	
conjunction	1522 Dec 25 j 15:34	13°  23'39	0°08'43	conjunction	1531 Jan 08 j 13:03	27°  36'09	-4°-3'-4
minimum elong	1522 Dec 25 j 15:34	13°  23'39	0°08'44	minimum elong	1531 Jan 08 j 12:55	27°  36'08	4°03'05
behind sun begin	1522 Dec 25 j 10:02	13°  23'12		max. Earth dist.	1531 Jan 11 j 07:48	27°  41'28	36.56704 AU
behind sun end	1522 Dec 25 j 21:07	13°  24'06		retrograde	1531 Apr 21 j 18:48	29°  40'50	
max. Earth dist.	1522 Dec 27 j 22:43	13°  28'19	34.60413 AU	min. Earth dist.	1531 Jul 09 j 18:43	28°  31'27	34.70013 AU
desc. node	1523 Mar 30 j 16:12	15°  35'30		opposition	1531 Jul 12 j 13:55	28°  27'32	-4°-32'-32
retrograde	1523 Apr 07 j 23:52	15°  36'31		direct	1531 Oct 01 j 09:24	27°  14'46	
min. Earth dist.	1523 Jun 25 j 11:20	14°  24'17	32.72047 AU	conjunction	1532 Jan 10 j 10:16	29°  16'25	-4°-31'-55
opposition	1523 Jun 27 j 20:37	14°  20'48	0°-8'-35	minimum elong	1532 Jan 10 j 10:08	29°  16'24	4°31'57
direct	1523 Sep 16 j 10:41	13°  05'09		max. Earth dist.	1532 Jan 13 j 04:58	29°  21'41	36.82383 AU
conjunction	1523 Dec 27 j 17:29	15°  15'48	0°-24'-39	retrograde	1532 Feb 02 j 21:03	0° 	
minimum elong	1523 Dec 27 j 17:28	15°  15'48	0°24'40	retrograde	1532 Apr 22 j 16:48	1°  20'11	
max. Earth dist.	1523 Dec 30 j 02:52	15°  20'37	34.83961 AU	min. Earth dist.	1532 Jul 10 j 16:19	0°  11'14	34.95882 AU
retrograde	1524 Apr 09 j 01:10	17°  27'34		opposition	1532 Jul 13 j 13:25	0°  07'13	-5°-2'-36
min. Earth dist.	1524 Jun 26 j 15:17	16°  15'38	32.95714 AU		1532 Jul 18 j 17:56	30°  R 	
opposition	1524 Jun 29 j 01:06	16°  12'08	0°-43'-41	direct	1532 Oct 02 j 08:54	28°  54'50	
direct	1524 Sep 17 j 17:45	14°  56'50			1532 Dec 11 j 17:56	0° 	
conjunction	1524 Dec 28 j 18:33	17°  06'16	0°-57'-29	conjunction	1533 Jan 11 j 07:06	0°  55'29	-5°00'-9
minimum elong	1524 Dec 28 j 18:31	17°  06'15	0°57'31	minimum elong	1533 Jan 11 j 06:57	0°  55'29	5°00'10
max. Earth dist.	1524 Dec 31 j 04:12	17°  11'04	35.07736 AU	max. Earth dist.	1533 Jan 14 j 03:28	1°  00'52	37.08131 AU
retrograde	1525 Apr 11 j 03:06	19°  16'56		retrograde	1533 Apr 24 j 11:56	2°  58'23	
min. Earth dist.	1525 Jun 28 j 16:32	18°  05'25	33.19655 AU	min. Earth dist.	1533 Jul 12 j 15:45	1°  49'43	35.21799 AU
opposition	1525 Jul 01 j 04:45	18°  01'47	-1°-18'-14	opposition	1533 Jul 15 j 12:30	1°  45'44	-5°-31'-59
direct	1525 Sep 19 j 21:56	16°  46'49		direct	1533 Oct 04 j 09:57	0°  33'44	
conjunction	1525 Dec 30 j 19:07	18°  55'02	-1°-29'-49	conjunction	1534 Jan 13 j 03:35	2°  33'25	-5°-27'-46
minimum elong	1525 Dec 30 j 19:04	18°  55'02	1°29'51	minimum elong	1534 Jan 13 j 03:25	2°  33'25	5°27'47
max. Earth dist.	1526 Jan 02 j 07:06	19°  00'00	35.31784 AU	max. Earth dist.	1534 Jan 15 j 23:55	2°  38'45	37.33896 AU
retrograde	1526 Apr 13 j 00:29	21°  04'38		retrograde	1534 Apr 26 j 07:30	4°  35'27	
min. Earth dist.	1526 Jun 30 j 19:20	19°  53'25	33.43915 AU	min. Earth dist.	1534 Jul 14 j 12:55	3°  27'09	35.47701 AU
opposition	1526 Jul 03 j 07:59	19°  49'46	-1°-52'-12	opposition	1534 Jul 17 j 11:01	3°  23'07	-6°00'-41
direct	1526 Sep 22 j 03:18	18°  35'09		direct	1534 Oct 06 j 09:36	2°  11'27	
conjunction	1527 Jan 01 j 18:56	20°  42'11	-2°-1'-37	conjunction	1535 Jan 14 j 23:31	4°  10'12	-5°-54'-44
minimum elong	1527 Jan 01 j 18:52	20°  42'11	2°01'39	minimum elong	1535 Jan 14 j 23:21	4°  10'11	5°54'45
max. Earth dist.	1527 Jan 04 j 07:46	20°  47'11	35.56156 AU	max. Earth dist.	1535 Jan 17 j 20:24	4°  15'32	37.59598 AU
retrograde	1527 Apr 14 j 22:50	22°  50'44		retrograde	1535 Apr 28 j 03:55	6°  11'22	
min. Earth dist.	1527 Jul 02 j 19:20	21°  39'55	33.68517 AU	min. Earth dist.	1535 Jul 16 j 11:05	5°  03'20	35.73544 AU
opposition	1527 Jul 05 j 10:22	21°  36'09	-2°-25'-34	opposition	1535 Jul 19 j 09:09	4°  59'20	-6°-28'-42
direct	1527 Sep 24 j 07:16	20°  21'53		direct	1535 Oct 08 j 07:04	3°  48'00	
conjunction	1528 Jan 03 j 18:18	22°  27'46	-2°-32'-52	conjunction	1536 Jan 16 j 19:13	5°  45'47	-6°-21'-6
minimum elong	1528 Jan 03 j 18:12	22°  27'46	2°32'53	minimum elong	1536 Jan 16 j 19:03	5°  45'47	6°21'07
max. Earth dist.	1528 Jan 06 j 08:47	22°  32'52	35.80851 AU	max. Earth dist.	1536 Jan 19 j 16:55	5°  51'09	37.85219 AU
retrograde	1528 Apr 15 j 22:00	24°  35'19		retrograde	1536 Apr 28 j 23:23	7°  46'07	
min. Earth dist.	1528 Jul 03 j 20:09	23°  24'50	33.93472 AU	min. Earth dist.	1536 Jul 17 j 08:03	6°  38'22	35.99287 AU
opposition	1528 Jul 06 j 12:04	23°  21'02	-2°-58'-18	opposition	1536 Jul 20 j 06:27	6°  34'21	-6°-56'-2
direct	1528 Sep 25 j 08:08	22°  07'08		direct	1536 Oct 09 j 04:49	5°  23'20	
conjunction	1529 Jan 04 j 17:09	24°  11'54	-3°-3'-32	conjunction	1537 Jan 17 j 14:13	7°  20'11	-6°-46'-49
minimum elong	1529 Jan 04 j 17:02	24° 11'54	3°03'33	minimum elong	1537 Jan 17 j 14:01	7° 20'11	6°46'49
max. Earth dist.	1529 Jan 07 j 09:14	24° 17'05	36.05878 AU	max. Earth dist.	1537 Jan 20 j 11:31	7° 25'29	38.10749 AU

retrograde	1537 Apr 30 j 21:08	9°19'39"		minimum elong	1545 Jan 29 j 07:10	19°16'07"	9°49'34"
min. Earth dist.	1537 Jul 19 j 04:01	8°12'12"	36.24984 AU	max. Earth dist.	1545 Feb 01 j 09:48	19°21'31"	40.15118 AU
opposition	1537 Jul 22 j 03:28	8°08'09"	-7°-22'-41"	retrograde	1545 May 12 j 13:49	21°09'35"	
direct	1537 Oct 10 j 23:22	6°57'26"		min. Earth dist.	1545 Jul 31 j 08:19	20°04'17"	38.30899 AU
				opposition	1545 Aug 03 j 10:20	20°00'15"	-10°-30'-57"
conjunction	1538 Jan 19 j 08:44	8°53'23"	-7°-11'-54"	direct	1545 Oct 23 j 08:02	18°51'59"	
minimum elong	1538 Jan 19 j 08:32	8°53'22"	7°11'56"				
max. Earth dist.	1538 Jan 22 j 07:41	8°58'45"	38.36240 AU	conjunction	1546 Jan 30 j 22:55	20°41'30"	-10°-9'-35"
retrograde	1538 May 02 j 14:53	10°52'01"		minimum elong	1546 Jan 30 j 22:41	20°41'29"	10°09'36"
min. Earth dist.	1538 Jul 21 j 00:53	9°44'46"	36.50664 AU	max. Earth dist.	1546 Feb 03 j 00:34	20°46'49"	40.40345 AU
opposition	1538 Jul 24 j 00:00	9°40'46"	-7°-48'-38"	retrograde	1546 May 14 j 04:26	22°34'16"	
direct	1538 Oct 12 j 20:44	8°30'20"		min. Earth dist.	1546 Aug 02 j 00:34	21°29'16"	38.56214 AU
				opposition	1546 Aug 05 j 03:22	21°25'12"	-10°-51'-29"
conjunction	1539 Jan 21 j 02:49	10°25'23"	-7°-36'-21"	direct	1546 Oct 25 j 02:29	20°17'13"	
minimum elong	1539 Jan 21 j 02:37	10°25'22"	7°36'21"				
max. Earth dist.	1539 Jan 24 j 01:28	10°30'42"	38.61742 AU	conjunction	1547 Feb 01 j 14:19	22°06'01"	-10°-29'-2"
retrograde	1539 May 04 j 08:14	12°23'12"		minimum elong	1547 Feb 01 j 14:07	22°06'00"	10°29'02"
min. Earth dist.	1539 Jul 22 j 18:59	11°16'17"	36.76386 AU	max. Earth dist.	1547 Feb 04 j 16:06	22°11'18"	40.65298 AU
opposition	1539 Jul 25 j 19:47	11°12'12"	-8°-13'-53"	retrograde	1547 May 15 j 19:03	23°58'06"	
direct	1539 Oct 14 j 17:56	10°02'05"		min. Earth dist.	1547 Aug 03 j 18:15	22°53'17"	38.81246 AU
				opposition	1547 Aug 06 j 20:05	22°49'17"	-11°-11'-24"
conjunction	1540 Jan 22 j 20:31	11°56'16"	-8°00'-9"	direct	1547 Oct 26 j 20:02	21°41'34"	
minimum elong	1540 Jan 22 j 20:18	11°56'15"	8°00'10"				
max. Earth dist.	1540 Jan 25 j 20:36	12°01'40"	38.87283 AU	conjunction	1548 Feb 03 j 05:30	23°29'38"	-10°-47'-54"
retrograde	1540 May 05 j 00:20	13°53'18"		minimum elong	1548 Feb 03 j 05:16	23°29'37"	10°47'55"
min. Earth dist.	1540 Jul 23 j 14:47	12°46'37"	37.02163 AU	max. Earth dist.	1548 Feb 06 j 07:13	23°34'54"	40.89957 AU
opposition	1540 Jul 26 j 15:20	12°42'34"	-8°-38'-26"	retrograde	1548 May 16 j 08:38	25°21'04"	
direct	1540 Oct 15 j 15:04	11°32'45"		min. Earth dist.	1548 Aug 04 j 10:35	24°16'27"	39.05952 AU
				opposition	1548 Aug 07 j 12:20	24°12'27"	-11°-30'-43"
conjunction	1541 Jan 23 j 13:45	13°26'06"	-8°-23'-18"	direct	1548 Oct 27 j 13:54	23°04'59"	
minimum elong	1541 Jan 23 j 13:33	13°26'05"	8°23'18"				
max. Earth dist.	1541 Jan 26 j 14:12	13°31'29"	39.12884 AU	conjunction	1549 Feb 03 j 20:01	24°52'20"	-11°-6'-12"
	1541 Mar 25 j 23:51	15°		minimum elong	1549 Feb 03 j 19:49	24°52'20"	11°06'13"
retrograde	1541 May 06 j 16:09	15°22'22"		max. Earth dist.	1549 Feb 06 j 20:46	24°57'29"	41.14299 AU
	1541 Jun 18 j 19:10	15°R		retrograde	1549 May 18 j 01:12	26°43'06"	
min. Earth dist.	1541 Jul 25 j 08:26	14°16'02"	37.27980 AU	min. Earth dist.	1549 Aug 06 j 02:31	25°38'41"	39.30378 AU
opposition	1541 Jul 28 j 10:16	14°11'55"	-9°-2'-18"	opposition	1549 Aug 09 j 04:22	25°34'42"	-11°-49'-26"
direct	1541 Oct 17 j 11:27	13°02'24"		direct	1549 Oct 29 j 04:24	24°27'28"	
conjunction	1542 Jan 25 j 06:35	14°54'56"	-8°-45'-48"	conjunction	1550 Feb 05 j 10:26	26°14'07"	-11°-23'-56"
minimum elong	1542 Jan 25 j 06:23	14°54'55"	8°45'50"	minimum elong	1550 Feb 05 j 10:13	26°14'06"	11°23'58"
max. Earth dist.	1542 Jan 28 j 07:20	15°00'19"	39.38511 AU	max. Earth dist.	1550 Feb 08 j 12:11	26°19'18"	41.38384 AU
	1542 Jan 28 j 03:03	15°		retrograde	1550 May 19 j 15:59	28°04'13"	
retrograde	1542 May 08 j 10:13	16°50'29"		min. Earth dist.	1550 Aug 07 j 19:00	26°59'55"	39.54564 AU
min. Earth dist.	1542 Jul 27 j 02:50	15°44'25"	37.53831 AU	opposition	1550 Aug 10 j 19:56	26°56'01"	-12°-7'-32"
opposition	1542 Jul 30 j 04:59	15°40'19"	-9°-25'-28"	direct	1550 Oct 30 j 19:39	25°49'00"	
	1542 Aug 31 j 11:41	15°R					
direct	1542 Oct 19 j 05:01	14°31'08"		conjunction	1551 Feb 07 j 00:21	27°34'58"	-11°-41'-6"
	1542 Dec 05 j 00:55	15°		minimum elong	1551 Feb 07 j 00:09	27°34'57"	11°41'07"
				max. Earth dist.	1551 Feb 10 j 01:12	27°40'04"	41.62266 AU
conjunction	1543 Jan 26 j 23:11	16°22'52"	-9°-7'-41"	retrograde	1551 May 21 j 06:42	29°24'26"	
minimum elong	1543 Jan 26 j 22:58	16°22'51"	9°07'41"	min. Earth dist.	1551 Aug 09 j 09:04	28°20'23"	39.78573 AU
max. Earth dist.	1543 Jan 30 j 01:12	16°28'18"	39.64141 AU	opposition	1551 Aug 12 j 11:05	28°16'26"	-12°-25'-1"
retrograde	1543 May 10 j 03:50	18°17'42"		direct	1551 Nov 01 j 09:49	27°09'39"	
min. Earth dist.	1543 Jul 28 j 21:02	17°11'54"	37.79636 AU				
opposition	1543 Jul 31 j 23:10	17°07'49"	-9°-47'-57"	conjunction	1552 Feb 08 j 14:02	28°54'58"	-11°-57'-41"
direct	1543 Oct 20 j 22:22	15°58'57"		minimum elong	1552 Feb 08 j 13:50	28°54'57"	11°57'42"
				max. Earth dist.	1552 Feb 11 j 15:36	29°00'04"	41.85981 AU
conjunction	1544 Jan 28 j 15:22	17°49'55"	-9°-28'-56"		1552 Mar 21 j 09:13	0°	
minimum elong	1544 Jan 28 j 15:09	17°49'55"	9°28'57"	retrograde	1552 May 21 j 18:16	0°43'49"	
max. Earth dist.	1544 Jan 31 j 16:41	17°55'16"	39.89696 AU		1552 Jul 24 j 21:35	30°R	
retrograde	1544 May 10 j 22:42	19°44'03"		min. Earth dist.	1552 Aug 10 j 00:49	29°39'55"	40.02437 AU
min. Earth dist.	1544 Jul 29 j 13:44	18°38'34"	38.05352 AU	opposition	1552 Aug 13 j 01:51	29°36'02"	-12°-41'-54"
opposition	1544 Aug 01 j 16:49	18°34'27"	-10°-9'-47"	direct	1552 Nov 02 j 02:32	28°29'29"	
direct	1544 Oct 21 j 13:35	17°25'53"			1553 Jan 31 j 14:08	0°	
conjunction	1545 Jan 29 j 07:22	19°16'08"	-9°-49'-33"	conjunction	1553 Feb 09 j 03:27	0°14'10"	-12°-13'-42"

minimum elong	1553 Feb 09 j 03:16	0° H 14'09	12°13'43	max. Earth dist.	1561 Feb 22 j 03:51	10° H 30'04	43.90239 AU
max. Earth dist.	1553 Feb 12 j 04:57	0° H 19'15	42.09580 AU	retrograde	1561 Jun 02 j 10:41	12° H 09'31	
retrograde	1553 May 23 j 05:37	2° H 02'26		min. Earth dist.	1561 Aug 22 j 03:25	11° H 07'19	42.07133 AU
min. Earth dist.	1553 Aug 11 j 14:32	0° H 58'47	40.26170 AU	opposition	1561 Aug 25 j 01:42	11° H 03'42	-14°-48'-34
opposition	1553 Aug 14 j 16:18	0° H 54'52	-12°-58'-11	direct	1561 Nov 14 j 03:13	9° H 59'15	
	1553 Oct 04 j 05:13	30° R \approx					
direct	1553 Nov 03 j 18:48	29° R \approx 48'34		conjunction	1562 Feb 20 j 16:52	11° H 38'59	-14°-14'-11
	1553 Dec 03 j 14:59	0° H		minimum elong	1562 Feb 20 j 16:44	11° H 38'58	14°14'12
				max. Earth dist.	1562 Feb 23 j 15:37	11° H 43'39	44.11223 AU
conjunction	1554 Feb 10 j 16:22	1° H 32'39	-12°-29'-10	retrograde	1562 Jun 03 j 22:27	13° H 22'35	
minimum elong	1554 Feb 10 j 16:10	1° H 32'39	12°29'10	min. Earth dist.	1562 Aug 23 j 16:45	12° H 20'27	42.28119 AU
max. Earth dist.	1554 Feb 13 j 17:36	1° H 37'42	42.33043 AU	opposition	1562 Aug 26 j 13:38	12° H 16'54	-15°00'-5
retrograde	1554 May 24 j 19:54	3° H 20'23		direct	1562 Nov 15 j 14:34	11° H 12'37	
min. Earth dist.	1554 Aug 13 j 04:57	2° H 16'56	40.49773 AU				
opposition	1554 Aug 16 j 06:35	2° H 13'03	-13°-13'-53	conjunction	1563 Feb 22 j 03:51	12° H 51'49	-14°-25'-10
direct	1554 Nov 05 j 08:19	1° H 07'00		minimum elong	1563 Feb 22 j 03:42	12° H 51'49	14°25'11
				max. Earth dist.	1563 Feb 25 j 01:24	12° H 56'24	44.31899 AU
conjunction	1555 Feb 12 j 05:18	2° H 50'30	-12°-44'-4	retrograde	1563 Jun 05 j 09:55	14° H 34'54	
minimum elong	1555 Feb 12 j 05:08	2° H 50'29	12°44'05	min. Earth dist.	1563 Aug 25 j 03:37	13° H 32'56	42.48824 AU
max. Earth dist.	1555 Feb 15 j 07:24	2° H 55'35	42.56362 AU	opposition	1563 Aug 28 j 01:00	13° H 29'23	-15°-11'-7
retrograde	1555 May 26 j 09:03	4° H 37'41		direct	1563 Nov 17 j 00:52	12° H 25'15	
min. Earth dist.	1555 Aug 14 j 19:14	3° H 34'27	40.73190 AU				
opposition	1555 Aug 17 j 20:17	3° H 30'36	-13°-29'00	conjunction	1564 Feb 23 j 14:34	14° H 03'58	-14°-35'-40
direct	1555 Nov 06 j 22:14	2° H 24'49		minimum elong	1564 Feb 23 j 14:26	14° H 03'57	14°35'41
				max. Earth dist.	1564 Feb 26 j 12:07	14° H 08'31	44.52314 AU
conjunction	1556 Feb 13 j 17:51	4° H 07'46	-12°-58'-26	retrograde	1564 Jun 05 j 19:14	15° H 46'33	
minimum elong	1556 Feb 13 j 17:39	4° H 07'45	12°58'26	min. Earth dist.	1564 Aug 25 j 16:11	14° H 44'40	42.69297 AU
max. Earth dist.	1556 Feb 16 j 18:39	4° H 12'43	42.79484 AU	opposition	1564 Aug 28 j 12:24	14° H 41'11	-15°-21'-39
retrograde	1556 May 27 j 00:50	5° H 54'25		direct	1564 Nov 17 j 12:53	13° H 37'13	
min. Earth dist.	1556 Aug 15 j 08:17	4° H 51'26	40.96393 AU				
opposition	1556 Aug 18 j 09:51	4° H 47'35	-13°-43'-33	conjunction	1565 Feb 24 j 00:59	15° H 15'26	-14°-45'-42
direct	1556 Nov 07 j 08:32	3° H 42'03		minimum elong	1565 Feb 24 j 00:51	15° H 15'26	14°45'43
				max. Earth dist.	1565 Feb 26 j 22:43	15° H 19'59	44.72526 AU
conjunction	1557 Feb 14 j 06:08	5° H 24'27	-13°-12'-16	retrograde	1565 Jun 07 j 02:34	16° H 57'34	
minimum elong	1557 Feb 14 j 05:58	5° H 24'27	13°12'18	min. Earth dist.	1565 Aug 27 j 03:01	15° H 55'51	42.89555 AU
max. Earth dist.	1557 Feb 17 j 07:43	5° H 29'26	43.02352 AU	opposition	1565 Aug 29 j 23:27	15° H 52'21	-15°-31'-42
retrograde	1557 May 28 j 14:12	7° H 10'36		direct	1565 Nov 19 j 02:56	14° H 48'35	
min. Earth dist.	1557 Aug 16 j 23:11	6° H 07'45	41.19309 AU				
opposition	1557 Aug 19 j 23:16	6° H 04'00	-13°-57'-34	conjunction	1566 Feb 25 j 11:11	16° H 26'19	-14°-55'-16
direct	1557 Nov 08 j 20:51	4° H 58'44		minimum elong	1566 Feb 25 j 11:05	16° H 26'19	14°55'17
				max. Earth dist.	1566 Feb 28 j 07:50	16° H 30'47	44.92538 AU
conjunction	1558 Feb 15 j 18:22	6° H 40'36	-13°-25'-36	retrograde	1566 Jun 08 j 14:15	18° H 08'00	
minimum elong	1558 Feb 15 j 18:12	6° H 40'35	13°25'37	min. Earth dist.	1566 Aug 28 j 14:01	17° H 06'27	43.09623 AU
max. Earth dist.	1558 Feb 18 j 18:58	6° H 45'30	43.24920 AU	opposition	1566 Aug 31 j 10:18	17° H 02'58	-15°-41'-15
retrograde	1558 May 30 j 00:07	8° H 26'14		direct	1566 Nov 20 j 13:18	15° H 59'23	
min. Earth dist.	1558 Aug 18 j 11:45	7° H 23'38	41.41881 AU				
opposition	1558 Aug 21 j 12:13	7° H 19'52	-14°-11'-4	conjunction	1567 Feb 26 j 21:21	17° H 36'40	-15°-4'-22
direct	1558 Nov 10 j 11:29	6° H 14'49		minimum elong	1567 Feb 26 j 21:14	17° H 36'40	15°04'23
				max. Earth dist.	1567 Mar 01 j 18:44	17° H 41'09	45.12349 AU
conjunction	1559 Feb 17 j 06:20	7° H 56'10	-13°-38'-27	retrograde	1567 Jun 10 j 01:06	19° H 17'56	
minimum elong	1559 Feb 17 j 06:10	7° H 56'09	13°38'29	min. Earth dist.	1567 Aug 30 j 01:47	18° H 16'29	43.29455 AU
max. Earth dist.	1559 Feb 20 j 06:14	8° H 01'00	43.47105 AU	opposition	1567 Sep 01 j 20:56	18° H 13'05	-15°-50'-19
retrograde	1559 May 31 j 10:44	9° H 41'18		direct	1567 Nov 21 j 23:47	17° H 09'41	
min. Earth dist.	1559 Aug 20 j 01:58	8° H 38'49	41.64056 AU				
opposition	1559 Aug 23 j 01:06	8° H 35'08	-14°-24'-3	conjunction	1568 Feb 28 j 07:13	18° H 46'33	-15°-13'-1
direct	1559 Nov 12 j 02:08	7° H 30'19		minimum elong	1568 Feb 28 j 07:07	18° H 46'33	15°13'02
				max. Earth dist.	1568 Mar 02 j 03:20	18° H 50'56	45.31923 AU
conjunction	1560 Feb 18 j 18:14	9° H 11'08	-13°-50'-50	retrograde	1568 Jun 10 j 12:21	20° H 27'23	
minimum elong	1560 Feb 18 j 18:05	9° H 11'07	13°50'50	min. Earth dist.	1568 Aug 30 j 11:35	19° H 26'10	43.49027 AU
max. Earth dist.	1560 Feb 21 j 17:58	9° H 15'55	43.68882 AU	opposition	1568 Sep 02 j 07:13	19° H 22'45	-15°-58'-56
retrograde	1560 May 31 j 21:20	10° H 55'45		direct	1568 Nov 22 j 08:02	18° H 19'33	
min. Earth dist.	1560 Aug 20 j 15:02	9° H 53'25	41.85790 AU				
opposition	1560 Aug 23 j 13:26	9° H 49'46	-14°-36'-33	conjunction	1569 Feb 28 j 16:56	19° H 56'01	-15°-21'-14
direct	1560 Nov 12 j 16:23	8° H 45'08		minimum elong	1569 Feb 28 j 16:50	19° H 56'00	15°21'15
				max. Earth dist.	1569 Mar 03 j 13:00	20° H 00'22	45.51207 AU
conjunction	1561 Feb 19 j 05:40	10° H 25'24	-14°-2'-45	retrograde	1569 Jun 11 j 21:34	21° H 36'27	
minimum elong	1561 Feb 19 j 05:31	10° H 25'24	14°02'46	min. Earth dist.	1569 Aug 31 j 23:31	20° H 35'20	43.68284 AU

opposition	1569 Sep 03 j 17:32	20° ✕ 32'00	-16°-7'-7	direct	1577 Dec 03 j 01:15	28° ✕ 28'54	
direct	1569 Nov 23 j 18:25	19° ✕ 29'01			1578 Mar 09 j 17:59	0° Υ	
conjunction	1570 Mar 02 j 02:34	21° ✕ 05'05	-15°-29'-2	conjunction	1578 Mar 11 j 01:35	0° Υ 01'57	-16°-17'-44
minimum elong	1570 Mar 02 j 02:29	21° ✕ 05'05	15°29'04	minimum elong	1578 Mar 11 j 01:32	0° Υ 01'57	16°17'45
max. Earth dist.	1570 Mar 04 j 22:05	21° ✕ 09'23	45.70158 AU	max. Earth dist.	1578 Mar 13 j 14:28	0° Υ 05'43	47.06814 AU
retrograde	1570 Jun 13 j 05:01	22° ✕ 45'08		retrograde	1578 Jun 22 j 04:54	1° Υ 39'03	
min. Earth dist.	1570 Sep 02 j 09:44	21° ✕ 44'11	43.87153 AU	min. Earth dist.	1578 Sep 11 j 16:24	0° Υ 38'55	45.23145 AU
opposition	1570 Sep 05 j 03:30	21° ✕ 40'53	-16°-14'-52	opposition	1578 Sep 14 j 04:11	0° Υ 35'59	-17°-2'-45
direct	1570 Nov 25 j 06:03	20° ✕ 38'05			1578 Oct 16 j 12:58	30° ℞ ✕	
				direct	1578 Dec 04 j 07:45	29° ✕ 34'23	
conjunction	1571 Mar 03 j 12:06	22° ✕ 13'46	-15°-36'-27		1579 Jan 20 j 19:24	0° Υ	
minimum elong	1571 Mar 03 j 12:00	22° ✕ 13'46	15°36'27				
max. Earth dist.	1571 Mar 06 j 06:02	22° ✕ 17'58	45.88686 AU	conjunction	1579 Mar 12 j 09:47	1° Υ 07'07	-16°-22'-6
retrograde	1571 Jun 14 j 15:20	23° ✕ 53'27		minimum elong	1579 Mar 12 j 09:46	1° Υ 07'07	16°22'07
min. Earth dist.	1571 Sep 03 j 20:40	22° ✕ 52'37	44.05585 AU	max. Earth dist.	1579 Mar 14 j 22:51	1° Υ 10'52	47.22465 AU
opposition	1571 Sep 06 j 13:16	22° ✕ 49'22	-16°-22'-13	retrograde	1579 Jun 23 j 14:07	2° Υ 43'53	
direct	1571 Nov 26 j 15:54	21° ✕ 46'45		min. Earth dist.	1579 Sep 13 j 02:11	1° Υ 43'49	45.38732 AU
				opposition	1579 Sep 15 j 12:21	1° Υ 40'57	-17°-6'-58
conjunction	1572 Mar 03 j 21:36	23° ✕ 22'03	-15°-43'-29	direct	1579 Dec 05 j 14:15	0° Υ 39'31	
minimum elong	1572 Mar 03 j 21:32	23° ✕ 22'03	15°43'30				
max. Earth dist.	1572 Mar 06 j 15:33	23° ✕ 26'14	46.06758 AU	conjunction	1580 Mar 12 j 17:49	2° Υ 11'56	-16°-26'-6
retrograde	1572 Jun 15 j 00:49	25° ✕ 01'22		minimum elong	1580 Mar 12 j 17:47	2° Υ 11'56	16°26'07
min. Earth dist.	1572 Sep 04 j 07:43	24° ✕ 00'37	44.23525 AU	max. Earth dist.	1580 Mar 15 j 05:57	2° Υ 15'38	47.37845 AU
opposition	1572 Sep 06 j 22:55	23° ✕ 57'27	-16°-29'-11	retrograde	1580 Jun 23 j 21:39	3° Υ 48'23	
direct	1572 Nov 27 j 02:22	22° ✕ 55'00		min. Earth dist.	1580 Sep 13 j 10:01	2° Υ 48'29	45.54014 AU
				opposition	1580 Sep 15 j 20:21	2° Υ 45'37	-17°-10'-48
conjunction	1573 Mar 05 j 06:38	24° ✕ 29'54	-15°-50'-8	direct	1580 Dec 05 j 21:06	1° Υ 44'20	
minimum elong	1573 Mar 05 j 06:33	24° ✕ 29'54	15°50'08				
max. Earth dist.	1573 Mar 07 j 22:35	24° ✕ 33'56	46.24358 AU	conjunction	1581 Mar 14 j 01:31	3° Υ 16'28	-16°-29'-45
retrograde	1573 Jun 16 j 12:46	26° ✕ 08'49		minimum elong	1581 Mar 14 j 01:31	3° Υ 16'28	16°29'46
min. Earth dist.	1573 Sep 05 j 17:13	25° ✕ 08'12	44.41005 AU	max. Earth dist.	1581 Mar 16 j 12:40	3° Υ 20'05	47.52893 AU
opposition	1573 Sep 08 j 08:23	25° ✕ 05'03	-16°-35'-46	retrograde	1581 Jun 25 j 04:46	4° Υ 52'37	
direct	1573 Nov 28 j 08:56	24° ✕ 02'45		min. Earth dist.	1581 Sep 14 j 19:35	3° Υ 52'47	45.68947 AU
				opposition	1581 Sep 17 j 04:27	3° Υ 50'00	-17°-14'-16
conjunction	1574 Mar 06 j 15:39	25° ✕ 37'16	-15°-56'-25	direct	1581 Dec 07 j 05:58	2° Υ 48'53	
minimum elong	1574 Mar 06 j 15:35	25° ✕ 37'16	15°56'27				
max. Earth dist.	1574 Mar 09 j 07:30	25° ✕ 41'16	46.41510 AU	conjunction	1582 Mar 15 j 09:29	4° Υ 20'42	-16°-33'-3
retrograde	1574 Jun 17 j 22:04	27° ✕ 15'47		minimum elong	1582 Mar 15 j 09:28	4° Υ 20'42	16°33'04
min. Earth dist.	1574 Sep 07 j 04:25	26° ✕ 15'12	44.58064 AU	max. Earth dist.	1582 Mar 17 j 20:33	4° Υ 24'19	47.67566 AU
opposition	1574 Sep 09 j 17:36	26° ✕ 12'10	-16°-41'-57	retrograde	1582 Jun 26 j 09:58	5° Υ 56'34	
direct	1574 Nov 29 j 17:07	25° ✕ 10'00		min. Earth dist.	1582 Sep 16 j 04:19	4° Υ 56'50	45.83453 AU
				opposition	1582 Sep 18 j 12:09	4° Υ 54'06	-17°-17'-24
conjunction	1575 Mar 08 j 00:29	26° ✕ 44'08	-16°-2'-19	direct	1582 Dec 18 16:49	3° Υ 53'07	
minimum elong	1575 Mar 08 j 00:26	26° ✕ 44'08	16°02'20				
max. Earth dist.	1575 Mar 10 j 15:34	26° ✕ 48'05	46.58289 AU	conjunction	1583 Mar 26 17:15	5° Υ 24'40	-16°-36'-2
retrograde	1575 Jun 19 j 03:23	28° ✕ 22'16		minimum elong	1583 Mar 26 17:16	5° Υ 24'40	16°36'04
min. Earth dist.	1575 Sep 08 j 13:06	27° ✕ 21'49	44.74761 AU	max. Earth dist.	1583 Mar 29 02:06	5° Υ 28'08	47.81788 AU
opposition	1575 Sep 11 j 02:28	27° ✕ 18'46	-16°-47'-45	retrograde	1583 Jul 07 20:07	7° Υ 00'14	
direct	1575 Dec 01 j 04:32	26° ✕ 16'44		min. Earth dist.	1583 Sep 27 12:42	6° Υ 00'36	45.97480 AU
				opposition	1583 Sep 29 19:51	5° Υ 57'55	-17°-20'-13
conjunction	1576 Mar 08 j 08:57	27° ✕ 50'30	-16°-7'-51	direct	1583 Dec 19 23:27	4° Υ 57'03	
minimum elong	1576 Mar 08 j 08:54	27° ✕ 50'30	16°07'52				
max. Earth dist.	1576 Mar 10 j 22:53	27° ✕ 54'22	46.74728 AU	conjunction	1584 Mar 27 00:58	6° Υ 28'18	-16°-38'-43
retrograde	1576 Jun 19 j 10:33	29° ✕ 28'17		minimum elong	1584 Mar 27 00:57	6° Υ 28'18	16°38'43
min. Earth dist.	1576 Sep 08 j 22:52	28° ✕ 27'55	44.91157 AU	max. Earth dist.	1584 Mar 29 09:25	6° Υ 31'44	47.95496 AU
opposition	1576 Sep 11 j 11:14	28° ✕ 24'55	-16°-53'-9	retrograde	1584 Jul 08 05:16	8° Υ 03'34	
direct	1576 Dec 01 j 15:00	27° ✕ 23'02		min. Earth dist.	1584 Sep 27 22:27	7° Υ 03'57	46.10970 AU
				opposition	1584 Sep 30 03:27	7° Υ 01'22	-17°-22'-43
conjunction	1577 Mar 09 j 17:27	28° ✕ 56'26	-16°-12'-59	direct	1584 Dec 20 06:19	6° Υ 00'38	
minimum elong	1577 Mar 09 j 17:25	28° ✕ 56'26	16°12'59				
max. Earth dist.	1577 Mar 12 j 07:49	29° ✕ 00'19	46.90898 AU	conjunction	1585 Mar 28 08:33	7° Υ 31'35	-16°-41'-5
	1577 Apr 25 j 05:27	0° Υ		minimum elong	1585 Mar 28 08:34	7° Υ 31'35	16°41'07
retrograde	1577 Jun 20 j 18:10	0° Υ 33'52		max. Earth dist.	1585 Mar 30 15:28	7° Υ 34'54	48.08693 AU
	1577 Aug 18 j 01:41	30° ℞ ✕		retrograde	1585 Jul 09 11:54	9° Υ 06'32	
min. Earth dist.	1577 Sep 10 j 08:09	29° ✕ 33'36	45.07277 AU	min. Earth dist.	1585 Sep 29 05:58	8° Υ 07'00	46.23945 AU
opposition	1577 Sep 12 j 19:47	29° ✕ 30'39	-16°-58'-9	opposition	1585 Oct 01 10:48	8° Υ 04'26	-17°-24'-55

direct	1585 Dec 21 13:04	7°03'47		minimum elong	1594 Apr 06 22:20	16°04'51	16°48'30
				max. Earth dist.	1594 Apr 08 21:58	16°04'59	49.10289 AU
conjunction	1586 Mar 29 15:50	8°03'42	-16°-43'-10	retrograde	1594 Jul 18 23:38	18°01'53	
minimum elong	1586 Mar 29 15:51	8°03'42	16°43'11	min. Earth dist.	1594 Oct 09 02:40	17°01'52	47.24060 AU
max. Earth dist.	1586 Mar 31 21:18	8°03'37	48.21384 AU	opposition	1594 Oct 10 22:33	17°01'46	-17°-30'-14
retrograde	1586 Jul 10 17:45	10°09'05		direct	1594 Dec 31 03:58	16°01'04	
min. Earth dist.	1586 Sep 30 15:04	9°09'33	46.36446 AU				
opposition	1586 Oct 02 18:08	9°07'04	-17°-26'-48	conjunction	1595 Apr 08 04:49	17°04'53	-16°-47'-48
direct	1586 Dec 22 21:16	8°06'30		minimum elong	1595 Apr 08 04:52	17°04'53	16°47'48
				max. Earth dist.	1595 Apr 10 02:45	17°04'20	49.19825 AU
conjunction	1587 Mar 30 23:12	9°03'52	-16°-44'-56	retrograde	1595 Jul 20 07:08	19°01'08	
minimum elong	1587 Mar 30 23:13	9°03'52	16°44'58	min. Earth dist.	1595 Oct 10 08:50	18°01'13	47.33334 AU
max. Earth dist.	1587 Apr 02 04:32	9°04'04	48.33638 AU	opposition	1595 Oct 12 04:27	18°01'08	-17°-29'-17
retrograde	1587 Jul 11 22:03	11°01'12		direct	1596 Jan 01 07:41	17°01'32	
min. Earth dist.	1587 Oct 01 22:46	10°01'43	46.48522 AU				
opposition	1587 Oct 04 00:59	10°09'17	-17°-28'-22	conjunction	1596 Apr 08 11:15	18°04'56	-16°-46'-50
direct	1587 Dec 24 07:09	9°08'48		minimum elong	1596 Apr 08 11:20	18°04'56	16°46'51
				max. Earth dist.	1596 Apr 10 07:39	18°04'32	49.28851 AU
conjunction	1588 Mar 31 06:11	10°03'53	-16°-46'-24	retrograde	1596 Jul 20 12:50	20°01'12	
minimum elong	1588 Mar 31 06:14	10°03'53	16°46'24	min. Earth dist.	1596 Oct 10 17:07	19°01'17	47.42087 AU
max. Earth dist.	1588 Apr 02 09:42	10°04'15	48.45509 AU	opposition	1596 Oct 12 10:35	19°01'19	-17°-28'-5
retrograde	1588 Jul 12 06:10	12°01'25		direct	1597 Jan 01 13:34	18°01'48	
min. Earth dist.	1588 Oct 02 06:03	11°01'32	46.60254 AU				
opposition	1588 Oct 04 07:54	11°01'07	-17°-29'-37	conjunction	1597 Apr 09 17:35	19°04'00	-16°-45'-38
direct	1588 Dec 24 13:35	10°01'04		minimum elong	1597 Apr 09 17:40	19°04'00	16°45'38
				max. Earth dist.	1597 Apr 11 13:26	19°04'34	49.37366 AU
conjunction	1589 Apr 01 13:02	11°04'03	-16°-47'-32	retrograde	1597 Jul 21 15:16	21°01'03	
minimum elong	1589 Apr 01 13:03	11°04'03	16°47'34	min. Earth dist.	1597 Oct 11 23:48	20°01'19	47.50311 AU
max. Earth dist.	1589 Apr 03 16:44	11°04'38	48.57052 AU	opposition	1597 Oct 13 16:29	20°01'14	-17°-26'-37
retrograde	1589 Jul 13 13:57	13°01'42		direct	1598 Jan 02 22:20	19°01'47	
min. Earth dist.	1589 Oct 03 14:25	12°01'45	46.71665 AU				
opposition	1589 Oct 05 14:44	12°01'23	-17°-30'-31	conjunction	1598 Apr 10 23:48	20°04'47	-16°-44'-10
direct	1589 Dec 25 19:58	11°01'20		minimum elong	1598 Apr 10 23:53	20°04'47	16°44'12
				max. Earth dist.	1598 Apr 12 17:26	20°04'13	49.45375 AU
conjunction	1590 Apr 02 19:53	12°04'15	-16°-48'-21	retrograde	1598 Jul 22 21:27	22°01'37	
minimum elong	1590 Apr 02 19:57	12°04'15	16°48'22	min. Earth dist.	1598 Oct 13 06:38	21°01'45	47.58064 AU
max. Earth dist.	1590 Apr 04 22:27	12°04'45	48.68312 AU	opposition	1598 Oct 14 22:12	21°01'52	-17°-24'-53
retrograde	1590 Jul 14 21:45	14°01'52		direct	1599 Jan 04 04:45	20°01'27	
min. Earth dist.	1590 Oct 04 20:37	13°01'09	46.82789 AU				
opposition	1590 Oct 06 21:11	13°01'34	-17°-31'-6	conjunction	1599 Apr 12 06:02	21°04'15	-16°-42'-27
direct	1590 Dec 27 00:16	12°01'38		minimum elong	1599 Apr 12 06:07	21°04'15	16°42'27
				max. Earth dist.	1599 Apr 13 23:26	21°04'40	49.52932 AU
conjunction	1591 Apr 04 02:36	13°04'25	-16°-48'-51	retrograde	1599 Jul 24 03:31	23°01'53	
minimum elong	1591 Apr 04 02:38	13°04'25	16°48'52	min. Earth dist.	1599 Oct 14 13:55	22°01'59	47.65383 AU
max. Earth dist.	1591 Apr 06 04:14	13°04'56	48.79278 AU	opposition	1599 Oct 16 03:51	22°01'11	-17°-22'-53
retrograde	1591 Jul 16 03:58	15°01'17		direct	1600 Jan 05 12:06	21°01'49	
min. Earth dist.	1591 Oct 06 04:50	14°01'03	46.93624 AU				
opposition	1591 Oct 08 03:47	14°01'48	-17°-31'-21	conjunction	1600 Apr 12 11:56	22°04'42	-16°-40'-27
direct	1591 Dec 28 06:26	13°01'44		minimum elong	1600 Apr 12 12:02	22°04'42	16°40'28
				max. Earth dist.	1600 Apr 14 03:56	22°04'44	49.60105 AU
conjunction	1592 Apr 04 09:13	14°04'32	-16°-49'-2	retrograde	1600 Jul 24 11:41	24°01'54	
minimum elong	1592 Apr 04 09:18	14°04'32	16°49'03	min. Earth dist.	1600 Oct 14 19:21	23°01'58	47.72344 AU
max. Earth dist.	1592 Apr 06 10:52	14°04'49	48.89957 AU	opposition	1600 Oct 16 09:18	23°01'50	-17°-20'-36
retrograde	1592 Jul 16 07:12	16°01'57		direct	1601 Jan 05 15:09	22°01'51	
min. Earth dist.	1592 Oct 06 11:29	15°01'50	47.04136 AU				
opposition	1592 Oct 08 10:04	15°01'53	-17°-31'-17				
direct	1592 Dec 28 15:57	14°01'53					
conjunction	1593 Apr 05 15:41	15°04'43	-16°-48'-54				
minimum elong	1593 Apr 05 15:43	15°04'43	16°48'56				
max. Earth dist.	1593 Apr 07 15:23	15°04'72	49.00312 AU				
retrograde	1593 Jul 17 15:08	17°01'29					
min. Earth dist.	1593 Oct 07 18:31	16°01'26	47.14311 AU				
opposition	1593 Oct 09 16:21	16°01'14	-17°-30'-54				
direct	1593 Dec 29 22:18	15°01'25					
conjunction	1594 Apr 06 22:15	16°04'51	-16°-48'-29				

direct	1600 Jan 05 12:06	21°♈16'49		opposition	1607 Oct 23 21:39	0°♏02'44	-16°-56'-41
				min. Earth dist.	1607 Oct 22 14:47	0°♏04'12	48.12150 AU
conjunction	1600 Apr 12 11:56	22°♈44'24	-16°-40'-27		1607 Oct 26 07:44	30°♏7°	
minimum elong	1600 Apr 12 12:02	22°♈44'24	16°40'28	direct	1608 Jan 13 04:52	29°♈03'54	
max. Earth dist.	1600 Apr 14 03:56	22°♈46'44	49.60105 AU		1608 Mar 28 19:48	0°♏	
retrograde	1600 Jul 24 11:41	24°♈15'49					
min. Earth dist.	1600 Oct 14 19:21	23°♈16'58	47.72344 AU	conjunction	1608 Apr 20 09:46	0°♏30'25	-16°-14'-35
opposition	1600 Oct 16 09:18	23°♈15'10	-17°-20'-36	minimum elong	1608 Apr 20 09:53	0°♏30'26	16°14'36
direct	1601 Jan 05 15:09	22°♈15'51		max. Earth dist.	1608 Apr 21 17:19	0°♏32'14	50.05873 AU
				retrograde	1608 Aug 01 05:29	2°♏00'37	
conjunction	1601 Apr 13 17:48	23°♈43'16	-16°-38'-11	min. Earth dist.	1608 Oct 22 21:14	1°♏02'00	48.16158 AU
minimum elong	1601 Apr 13 17:55	23°♈43'16	16°38'11	opposition	1608 Oct 24 02:43	1°♏00'36	-16°-52'-14
max. Earth dist.	1601 Apr 15 08:53	23°♈45'32	49.66939 AU	direct	1609 Jan 13 10:24	0°♏01'50	
retrograde	1601 Jul 25 18:26	25°♈14'28					
min. Earth dist.	1601 Oct 16 02:33	24°♈15'36	47.78994 AU	conjunction	1609 Apr 21 15:31	1°♏28'15	-16°-10'-14
opposition	1601 Oct 17 14:47	24°♈13'53	-17°-18'-2	minimum elong	1609 Apr 21 15:40	1°♏28'15	16°10'16
direct	1602 Jan 06 18:31	23°♈14'37		max. Earth dist.	1609 Apr 22 22:32	1°♏30'01	50.09680 AU
				retrograde	1609 Aug 02 10:22	2°♏58'20	
conjunction	1602 Apr 14 23:42	24°♈41'51	-16°-35'-37	min. Earth dist.	1609 Oct 24 04:00	1°♏59'40	48.19620 AU
minimum elong	1602 Apr 14 23:48	24°♈41'51	16°35'38	opposition	1609 Oct 25 07:39	1°♏58'22	-16°-47'-34
max. Earth dist.	1602 Apr 16 14:39	24°♈44'06	49.73488 AU	direct	1610 Jan 14 17:14	0°♏59'38	
retrograde	1602 Jul 26 20:30	26°♈12'52					
min. Earth dist.	1602 Oct 17 08:01	25°♈14'03	47.85345 AU	conjunction	1610 Apr 22 21:06	2°♏25'56	-16°-5'-40
opposition	1602 Oct 18 20:04	25°♈12'21	-17°-15'-10	minimum elong	1610 Apr 22 21:14	2°♏25'57	16°05'40
direct	1603 Jan 08 02:41	24°♈13'08		max. Earth dist.	1610 Apr 24 02:12	2°♏27'36	50.12973 AU
				retrograde	1610 Aug 03 18:07	3°♏55'53	
conjunction	1603 Apr 16 05:25	25°♈40'13	-16°-32'-47	min. Earth dist.	1610 Oct 25 09:13	2°♏57'15	48.22580 AU
minimum elong	1603 Apr 16 05:33	25°♈40'13	16°32'47	opposition	1610 Oct 26 12:26	2°♏55'59	-16°-42'-40
max. Earth dist.	1603 Apr 17 18:30	25°♈42'22	49.79749 AU	direct	1611 Jan 15 19:59	1°♏57'16	
retrograde	1603 Jul 28 01:03	27°♈11'04					
min. Earth dist.	1603 Oct 18 13:59	26°♈12'17	47.91417 AU	conjunction	1611 Apr 24 02:37	3°♏23'28	-16°00'-52
opposition	1603 Oct 20 01:15	26°♈10'37	-17°-12'-1	minimum elong	1611 Apr 24 02:46	3°♏23'29	16°00'53
direct	1604 Jan 09 09:14	25°♈11'28		max. Earth dist.	1611 Apr 25 06:21	3°♏25'03	50.15771 AU
				retrograde	1611 Aug 05 01:16	4°♏53'17	
conjunction	1604 Apr 16 11:11	26°♈38'25	-16°-29'-40	opposition	1611 Oct 27 17:09	3°♏53'25	-16°-37'-31
minimum elong	1604 Apr 16 11:17	26°♈38'26	16°29'41	min. Earth dist.	1611 Oct 26 16:08	3°♏54'36	48.25082 AU
max. Earth dist.	1604 Apr 18 00:25	26°♈40'34	49.85724 AU	direct	1612 Jan 16 22:08	2°♏54'43	
retrograde	1604 Jul 28 07:01	28°♈09'07					
min. Earth dist.	1604 Oct 18 20:41	27°♈10'22	47.97179 AU	conjunction	1612 Apr 24 08:06	4°♏20'51	-15°-55'-49
opposition	1604 Oct 20 06:30	27°♈08'45	-17°-8'-35	minimum elong	1612 Apr 24 08:16	4°♏20'51	15°55'49
direct	1605 Jan 09 15:26	26°♈09'42		max. Earth dist.	1612 Apr 25 11:25	4°♏22'24	50.18160 AU
				retrograde	1612 Aug 05 03:27	5°♏50'32	
conjunction	1605 Apr 17 16:42	27°♈36'31	-16°-26'-16	opposition	1612 Oct 27 21:46	4°♏50'42	-16°-32'-8
minimum elong	1605 Apr 17 16:51	27°♈36'31	16°26'17	min. Earth dist.	1612 Oct 26 20:57	4°♏51'52	48.27189 AU
max. Earth dist.	1605 Apr 19 04:33	27°♈38'34	49.91392 AU	direct	1613 Jan 17 04:59	3°♏52'01	
retrograde	1605 Jul 29 14:38	29°♈07'05					
min. Earth dist.	1605 Oct 20 01:48	28°♈08'24	48.02603 AU	conjunction	1613 Apr 25 13:17	5°♏18'03	-15°-50'-31
opposition	1605 Oct 21 11:36	28°♈06'49	-17°-4'-52	minimum elong	1613 Apr 25 13:25	5°♏18'04	15°50'32
direct	1606 Jan 10 18:31	27°♈07'49		max. Earth dist.	1613 Apr 26 14:37	5°♏19'30	50.20181 AU
				retrograde	1613 Aug 06 06:40	6°♏47'39	
conjunction	1606 Apr 18 22:24	28°♈34'32	-16°-22'-37	min. Earth dist.	1613 Oct 28 02:48	5°♏48'57	48.28958 AU
minimum elong	1606 Apr 18 22:31	28°♈34'32	16°22'38	opposition	1613 Oct 29 02:28	5°♏47'50	-16°-26'-29
max. Earth dist.	1606 Apr 20 08:59	28°♈36'31	49.96678 AU	direct	1614 Jan 18 11:35	4°♏49'11	
	1606 Jul 08 23:14	0°♏					
retrograde	1606 Jul 30 20:52	0°♏04'58		conjunction	1614 Apr 26 18:44	6°♏15'09	-15°-44'-59
	1606 Aug 21 17:52	30°♏7°		minimum elong	1614 Apr 26 18:54	6°♏15'09	15°44'59
min. Earth dist.	1606 Oct 21 09:04	29°♈06'17	48.07619 AU	max. Earth dist.	1614 Apr 27 20:08	6°♏16'36	50.21874 AU
opposition	1606 Oct 22 16:40	29°♈04'48	-17°00'-54	retrograde	1614 Aug 07 11:16	7°♏44'38	
direct	1607 Jan 11 22:23	28°♈05'54		min. Earth dist.	1614 Oct 29 08:37	6°♏45'56	48.30400 AU
				opposition	1614 Oct 30 06:58	6°♏44'53	-16°-20'-34
conjunction	1607 Apr 20 04:14	29°♈32'31	-16°-18'-43	direct	1615 Jan 19 18:19	5°♏46'15	
minimum elong	1607 Apr 20 04:23	29°♈32'31	16°18'44				
max. Earth dist.	1607 Apr 21 14:16	29°♈34'28	50.01531 AU	conjunction	1615 Apr 28 00:03	7°♏12'09	-15°-39'-10
	1607 May 10 10:28	0°♏		minimum elong	1615 Apr 28 00:11	7°♏12'09	15°39'12
retrograde	1607 Jul 31 23:52	1°♏02'49		max. Earth dist.	1615 Apr 28 23:54	7°♏13'30	50.23269 AU

retrograde	1615 Aug 08 19:01	8°841'33		retrograde	1623 Aug 16 10:17	16°816'00	
opposition	1615 Oct 31 11:28	7°841'51	-16°-14'-23	opposition	1623 Nov 07 22:57	15°816'30	-15°-16'-23
min. Earth dist.	1615 Oct 30 13:06	7°842'54	48.31544 AU	min. Earth dist.	1623 Nov 07 11:04	15°817'04	48.25496 AU
direct	1616 Jan 20 21:01	6°843'15			1623 Nov 22 19:19	15°817'58	
				direct	1624 Jan 28 09:03	14°817'58	
conjunction	1616 Apr 28 05:10	8°809'05	-15°-33'-7		1624 Apr 02 07:05	15°817'58	
minimum elong	1616 Apr 28 05:20	8°809'06	15°33'08				
max. Earth dist.	1616 Apr 29 04:01	8°810'23	50.24349 AU	conjunction	1624 May 05 23:45	15°843'35	-14°-36'-24
retrograde	1616 Aug 09 01:15	9°838'26		minimum elong	1624 May 05 23:55	15°843'35	14°36'26
opposition	1616 Oct 31 16:06	8°838'46	-16°-7'-57	max. Earth dist.	1624 May 06 12:36	15°844'18	50.17358 AU
min. Earth dist.	1616 Oct 30 19:34	8°839'44	48.32369 AU	retrograde	1624 Aug 16 12:57	17°812'27	
direct	1617 Jan 20 23:35	7°840'13		opposition	1624 Nov 08 03:15	16°812'56	-15°-8'-7
				min. Earth dist.	1624 Nov 07 16:44	16°813'26	48.22593 AU
conjunction	1617 Apr 29 10:30	9°806'01	-15°-26'-48	direct	1625 Jan 28 16:24	15°814'22	
minimum elong	1617 Apr 29 10:39	9°806'02	15°26'50				
max. Earth dist.	1617 Apr 30 09:05	9°807'18	50.25116 AU	conjunction	1625 May 07 04:55	16°839'58	-14°-28'-19
retrograde	1617 Aug 10 04:36	10°835'17		minimum elong	1625 May 07 05:07	16°839'58	14°28'20
opposition	1617 Nov 01 20:28	9°835'41	-16°-1'-15	max. Earth dist.	1625 May 07 16:11	16°840'36	50.14412 AU
min. Earth dist.	1617 Nov 01 00:20	9°836'37	48.32842 AU	retrograde	1625 Aug 17 19:34	18°808'48	
direct	1618 Jan 22 04:21	8°837'10		opposition	1625 Nov 09 07:22	17°809'17	-14°-59'-36
				min. Earth dist.	1625 Nov 08 20:58	17°809'46	48.19355 AU
conjunction	1618 Apr 30 15:45	10°802'57	-15°-20'-16	direct	1626 Jan 29 19:39	16°810'41	
minimum elong	1618 Apr 30 15:56	10°802'58	15°20'17				
max. Earth dist.	1618 May 01 12:06	10°804'06	50.25502 AU	conjunction	1626 May 08 10:09	17°836'17	-14°-20'00
retrograde	1618 Aug 11 09:13	11°832'10		minimum elong	1626 May 08 10:19	17°836'17	14°20'01
min. Earth dist.	1618 Nov 02 06:16	10°833'29	48.32909 AU	max. Earth dist.	1626 May 08 20:15	17°836'51	50.11133 AU
opposition	1618 Nov 03 00:58	10°832'37	-15°-54'-19	retrograde	1626 Aug 19 01:50	19°805'06	
direct	1619 Jan 23 09:31	9°834'07		opposition	1626 Nov 10 11:41	18°805'35	-14°-50'-50
				min. Earth dist.	1626 Nov 10 03:11	18°805'59	48.15802 AU
conjunction	1619 May 01 21:12	10°859'53	-15°-13'-29	direct	1627 Jan 30 22:22	17°806'57	
minimum elong	1619 May 01 21:22	10°859'54	15°13'29				
max. Earth dist.	1619 May 02 17:03	11°801'01	50.25434 AU	conjunction	1627 May 09 15:24	18°832'35	-14°-11'-25
retrograde	1619 Aug 12 12:28	12°829'03		minimum elong	1627 May 09 15:36	18°832'36	14°11'26
opposition	1619 Nov 04 05:21	11°829'33	-15°-47'-10	max. Earth dist.	1627 May 10 01:20	18°833'09	50.07566 AU
min. Earth dist.	1619 Nov 03 12:25	11°830'21	48.32481 AU	retrograde	1627 Aug 20 05:28	20°801'23	
direct	1620 Jan 24 16:28	10°831'05		opposition	1627 Nov 11 15:46	19°801'53	-14°-41'-49
				min. Earth dist.	1627 Nov 11 07:19	19°802'16	48.11958 AU
conjunction	1620 May 02 02:35	11°856'49	-15°-6'-29	direct	1628 Feb 01 02:52	18°803'15	
minimum elong	1620 May 02 02:46	11°856'49	15°06'31				
max. Earth dist.	1620 May 02 20:28	11°857'50	50.24866 AU	conjunction	1628 May 09 20:31	19°828'56	-14°-2'-36
retrograde	1620 Aug 12 19:29	13°825'56		minimum elong	1628 May 09 20:41	19°828'56	14°02'37
opposition	1620 Nov 04 09:48	12°826'27	-15°-39'-48	max. Earth dist.	1628 May 10 04:23	19°829'22	50.03717 AU
min. Earth dist.	1620 Nov 03 17:28	12°827'13	48.31527 AU	retrograde	1628 Aug 20 09:48	20°857'44	
direct	1621 Jan 24 20:11	11°827'59		opposition	1628 Nov 11 20:03	19°858'15	-14°-32'-32
				min. Earth dist.	1628 Nov 11 12:45	19°858'36	48.07838 AU
conjunction	1621 May 03 07:51	12°853'41	-14°-59'-17	direct	1629 Feb 01 07:35	18°859'38	
minimum elong	1621 May 03 08:01	12°853'42	14°59'18				
max. Earth dist.	1621 May 04 00:01	12°854'36	50.23744 AU	conjunction	1629 May 11 01:44	20°825'22	-13°-53'-31
retrograde	1621 Aug 14 03:30	14°822'45		minimum elong	1629 May 11 01:56	20°825'23	13°53'32
opposition	1621 Nov 05 14:22	13°823'16	-15°-32'-12	max. Earth dist.	1629 May 11 09:37	20°825'49	49.99573 AU
min. Earth dist.	1621 Nov 05 00:23	13°823'55	48.30019 AU	retrograde	1629 Aug 21 13:11	21°854'13	
direct	1622 Jan 25 22:14	12°824'47		opposition	1629 Nov 13 00:20	20°854'46	-14°-23'00
				min. Earth dist.	1629 Nov 12 18:18	20°855'03	48.03388 AU
conjunction	1622 May 04 13:19	13°850'27	-14°-51'-53	direct	1630 Feb 02 13:53	19°856'08	
minimum elong	1622 May 04 13:30	13°850'28	14°51'54				
max. Earth dist.	1622 May 05 04:42	13°851'19	50.22094 AU	conjunction	1630 May 12 07:05	21°821'57	-13°-44'-13
	1622 Jul 02 06:37	15°819'26		minimum elong	1630 May 12 07:15	21°821'57	13°44'14
retrograde	1622 Aug 15 06:54	15°819'26		max. Earth dist.	1630 May 12 13:19	21°822'18	49.95092 AU
	1622 Sep 28 15:36	15°819'57	-15°-24'-24	retrograde	1630 Aug 22 20:07	22°850'51	
opposition	1622 Nov 06 18:34	14°820'35	48.27985 AU	opposition	1630 Nov 14 04:25	21°851'26	-14°-13'-14
min. Earth dist.	1622 Nov 06 05:10	14°821'27		min. Earth dist.	1630 Nov 13 22:55	21°851'41	47.98571 AU
direct	1623 Jan 27 03:19	13°821'27		direct	1631 Feb 03 17:18	20°852'48	
conjunction	1623 May 05 18:35	14°847'05	-14°-44'-15	conjunction	1631 May 13 12:30	22°818'42	-13°-34'-41
minimum elong	1623 May 05 18:46	14°847'06	14°44'16	minimum elong	1631 May 13 12:42	22°818'43	13°34'42
max. Earth dist.	1623 May 06 07:36	14°847'49	50.19944 AU	max. Earth dist.	1631 May 13 17:11	22°818'58	49.90188 AU
	1623 May 15 07:54	15°847'39		retrograde	1631 Aug 24 04:47	23°847'39	

opposition	1631 Nov 15 08:49	22° 8 48'15	-14°-3'-14	opposition	1639 Nov 22 19:39	0° II 24'33	-12°-35'-2
min. Earth dist.	1631 Nov 15 05:34	22° 8 48'24	47.93302 AU	min. Earth dist.	1639 Nov 23 01:18	0° II 24'17	47.34496 AU
direct	1632 Feb 04 18:36	21° 8 49'37			1639 Dec 15 01:36	30° R 8	
				direct	1640 Feb 12 10:21	29° 8 25'26	
conjunction	1632 May 13 17:54	23° 8 15'36	-13°-24'-55		1640 Apr 10 15:37	0° II	
minimum elong	1632 May 13 18:05	23° 8 15'37	13°24'56				
max. Earth dist.	1632 May 13 21:51	23° 8 15'50	49.84813 AU	conjunction	1640 May 21 14:07	0° II 52'06	-11°-58'-54
retrograde	1632 Aug 24 10:00	24° 8 44'36		minimum elong	1640 May 21 14:20	0° II 52'07	11°58'55
opposition	1632 Nov 15 13:09	23° 8 45'12	-13°-53'00	max. Earth dist.	1640 May 21 07:45	0° II 51'45	49.25591 AU
min. Earth dist.	1632 Nov 15 10:23	23° 8 45'20	47.87523 AU	retrograde	1640 Aug 31 22:58	2° II 21'31	
direct	1633 Feb 04 22:03	22° 8 46'33		opposition	1640 Nov 23 00:08	1° II 21'48	-12°-22'-53
				min. Earth dist.	1640 Nov 23 05:57	1° II 21'31	47.25610 AU
conjunction	1633 May 14 23:22	24° 8 12'36	-13°-14'-57	direct	1641 Feb 12 15:19	0° II 22'37	
minimum elong	1633 May 14 23:34	24° 8 12'37	13°14'59				
max. Earth dist.	1633 May 15 00:46	24° 8 12'41	49.78914 AU	conjunction	1641 May 22 19:52	1° II 49'26	-11°-47'-3
retrograde	1633 Aug 25 14:06	25° 8 41'39		minimum elong	1641 May 22 20:03	1° II 49'27	11°47'05
opposition	1633 Nov 16 17:31	24° 8 42'13	-13°-42'-34	max. Earth dist.	1641 May 22 12:11	1° II 49'00	49.16699 AU
min. Earth dist.	1633 Nov 16 16:37	24° 8 42'16	47.81224 AU	retrograde	1641 Sep 02 06:47	3° II 18'58	
direct	1634 Feb 06 03:31	23° 8 43'31		opposition	1641 Nov 24 04:40	2° II 19'13	-12°-10'-29
				min. Earth dist.	1641 Nov 24 12:26	2° II 18'51	47.16414 AU
conjunction	1634 May 16 05:01	25° 8 09'39	-13°-4'-47	direct	1642 Feb 13 18:12	1° II 19'59	
minimum elong	1634 May 16 05:13	25° 8 09'40	13°04'48				
max. Earth dist.	1634 May 16 05:46	25° 8 09'42	49.72493 AU	conjunction	1642 May 24 01:48	2° II 46'58	-11°-34'-58
retrograde	1634 Aug 26 15:37	26° 8 38'44		minimum elong	1642 May 24 02:00	2° II 46'59	11°35'00
opposition	1634 Nov 17 21:54	25° 8 39'16	-13°-31'-55	max. Earth dist.	1642 May 23 17:45	2° II 46'31	49.07486 AU
min. Earth dist.	1634 Nov 17 22:30	25° 8 39'15	47.74404 AU	retrograde	1642 Sep 03 13:39	4° II 16'38	
direct	1635 Feb 07 12:02	24° 8 40'31		opposition	1642 Nov 25 09:12	3° II 16'51	-11°-57'-50
				min. Earth dist.	1642 Nov 25 17:17	3° II 16'28	47.06851 AU
conjunction	1635 May 17 10:29	26° 8 06'43	-12°-54'-23	direct	1643 Feb 14 21:12	2° II 17'35	
minimum elong	1635 May 17 10:41	26° 8 06'44	12°54'25				
max. Earth dist.	1635 May 17 09:21	26° 8 06'39	49.65590 AU	conjunction	1643 May 25 07:40	3° II 44'45	-11°-22'-40
retrograde	1635 Aug 27 21:52	27° 8 35'49		minimum elong	1643 May 25 07:51	3° II 44'46	11°22'40
opposition	1635 Nov 19 02:07	26° 8 36'19	-13°-21'-2	max. Earth dist.	1643 May 24 21:13	3° II 44'09	48.97862 AU
min. Earth dist.	1635 Nov 19 03:14	26° 8 36'16	47.67131 AU	retrograde	1643 Sep 04 19:53	5° II 14'33	
direct	1636 Feb 08 16:20	25° 8 37'30		opposition	1643 Nov 26 13:53	4° II 14'45	-11°-44'-57
				min. Earth dist.	1643 Nov 26 23:50	4° II 14'17	46.96854 AU
conjunction	1636 May 17 15:59	27° 8 03'46	-12°-43'-46	direct	1644 Feb 16 01:27	3° II 15'25	
minimum elong	1636 May 17 16:10	27° 8 03'46	12°43'47				
max. Earth dist.	1636 May 17 13:28	27° 8 03'37	49.58249 AU	conjunction	1644 May 25 13:51	4° II 42'47	-11°-10'-7
retrograde	1636 Aug 28 04:57	28° 8 32'55		minimum elong	1644 May 25 14:03	4° II 42'47	11°10'08
opposition	1636 Nov 19 06:32	27° 8 33'22	-13°-9'-54	max. Earth dist.	1644 May 25 02:45	4° II 42'09	48.87765 AU
min. Earth dist.	1636 Nov 19 09:42	27° 8 33'13	47.59459 AU	retrograde	1644 Sep 04 22:31	6° II 12'44	
direct	1637 Feb 08 19:00	26° 8 34'27		opposition	1644 Nov 26 18:40	5° II 12'53	-11°-31'-50
				min. Earth dist.	1644 Nov 27 06:05	5° II 12'21	46.86349 AU
conjunction	1637 May 18 21:29	28° 8 00'48	-12°-32'-55	direct	1645 Feb 16 09:23	4° II 13'29	
minimum elong	1637 May 18 21:40	28° 8 00'49	12°32'56				
max. Earth dist.	1637 May 18 18:38	28° 8 00'38	49.50548 AU	conjunction	1645 May 26 19:59	5° II 41'02	-10°-57'-21
retrograde	1637 Aug 29 10:01	29° 8 29'59		minimum elong	1645 May 26 20:10	5° II 41'02	10°57'21
opposition	1637 Nov 20 10:50	28° 8 30'23	-12°-58'-32	max. Earth dist.	1645 May 26 06:46	5° II 40'16	48.77157 AU
min. Earth dist.	1637 Nov 20 14:10	28° 8 30'14	47.51436 AU	retrograde	1645 Sep 06 04:54	7° II 11'08	
direct	1638 Feb 09 23:12	27° 8 31'24		opposition	1645 Nov 27 23:31	6° II 11'14	-11°-18'-30
				min. Earth dist.	1645 Nov 28 11:43	6° II 10'39	46.75317 AU
conjunction	1638 May 20 03:00	28° 8 57'51	-12°-21'-49	direct	1646 Feb 17 14:23	5° II 11'44	
minimum elong	1638 May 20 03:13	28° 8 57'52	12°21'50	max. Earth dist.	1646 May 27 11:20	6° II 38'37	48.66002 AU
max. Earth dist.	1638 May 19 22:01	28° 8 57'34	49.42514 AU				
	1638 Jul 09 12:34	0° II		conjunction	1646 May 28 02:20	6° II 39'29	-10°-44'-22
retrograde	1638 Aug 30 14:47	0° II 27'05		minimum elong	1646 May 28 02:32	6° II 39'29	10°44'24
	1638 Oct 22 05:54	30° R 8		retrograde	1646 Sep 07 12:42	8° II 09'43	
opposition	1638 Nov 21 15:10	29° 8 27'26	-12°-46'-55	opposition	1646 Nov 29 04:24	7° II 09'46	-11°-4'-55
min. Earth dist.	1638 Nov 21 19:48	29° 8 27'13	47.43113 AU	min. Earth dist.	1646 Nov 29 19:02	7° II 09'04	46.63757 AU
direct	1639 Feb 11 03:31	28° 8 28'22		direct	1647 Feb 18 17:39	6° II 10'10	
conjunction	1639 May 21 08:41	29° 8 54'56	-12°-10'-29	conjunction	1647 May 29 08:44	7° II 38'05	-10°-31'-10
minimum elong	1639 May 21 08:53	29° 8 54'57	12°10'30	minimum elong	1647 May 29 08:56	7° II 38'06	10°31'10
max. Earth dist.	1639 May 21 03:40	29° 8 54'39	49.34186 AU	max. Earth dist.	1647 May 28 16:59	7° II 37'11	48.54356 AU
	1639 May 25 01:58	0° II		retrograde	1647 Sep 08 18:53	9° II 08'28	
retrograde	1639 Aug 31 17:35	1° II 24'15		opposition	1647 Nov 30 09:18	8° II 08'26	-10°-51'-6

min. Earth dist.	1647 Dec 01 00:15	8°II07'43	46.51723 AU	conjunction	1656 Jun 06 21:06	16°II35'10	-8°-21'-13
direct	1648 Feb 19 22:27	7°II08'44		minimum elong	1656 Jun 06 21:16	16°II35'11	8°21'14
				max. Earth dist.	1656 Jun 05 18:00	16°II33'35	47.33594 AU
conjunction	1648 May 29 14:52	8°II36'51	-10°-17'-44	retrograde	1656 Sep 17 03:45	18°II07'28	
minimum elong	1648 May 29 15:03	8°II36'52	10°17'45	opposition	1656 Dec 08 09:29	17°II06'40	-8°-35'-4
max. Earth dist.	1648 May 28 20:45	8°II35'49	48.42257 AU	min. Earth dist.	1656 Dec 09 10:59	17°II05'25	45.28082 AU
retrograde	1648 Sep 09 01:14	10°II07'23		direct	1657 Feb 28 00:43	16°II05'54	
opposition	1648 Nov 30 14:22	9°II07'16	-10°-37'-3	max. Earth dist.	1657 Jun 07 00:35	17°II34'45	47.18318 AU
min. Earth dist.	1648 Dec 01 07:00	9°II06'28	46.39277 AU				
direct	1649 Feb 20 03:09	8°II07'26		conjunction	1657 Jun 08 04:39	17°II36'24	-8°-5'-32
				minimum elong	1657 Jun 08 04:50	17°II36'25	8°05'34
conjunction	1649 May 30 21:23	9°II35'47	-10°-4'-3	retrograde	1657 Sep 18 11:47	19°II08'57	
minimum elong	1649 May 30 21:35	9°II35'47	10°04'04	opposition	1657 Dec 09 15:16	18°II08'02	-8°-18'-39
max. Earth dist.	1649 May 30 03:06	9°II34'43	48.29764 AU	min. Earth dist.	1657 Dec 10 17:14	18°II06'46	45.12411 AU
retrograde	1649 Sep 10 04:40	11°II06'29		direct	1658 Mar 01 05:51	17°II07'06	
opposition	1649 Dec 01 19:21	10°II06'16	-10°-22'-44	max. Earth dist.	1658 Jun 08 05:32	18°II36'07	47.02537 AU
min. Earth dist.	1649 Dec 02 13:04	10°II05'24	46.26457 AU				
direct	1650 Feb 21 10:59	9°II06'19		conjunction	1658 Jun 09 12:16	18°II37'55	-7°-49'-37
max. Earth dist.	1650 May 31 07:54	10°II33'43	48.16937 AU	minimum elong	1658 Jun 09 12:26	18°II37'56	7°49'38
				retrograde	1658 Sep 19 21:30	20°II10'43	
conjunction	1650 Jun 01 03:53	10°II34'52	-9°-50'-7	opposition	1658 Dec 10 21:24	19°II09'40	-8°-1'-58
minimum elong	1650 Jun 01 04:04	10°II34'53	9°50'09	min. Earth dist.	1658 Dec 12 01:23	19°II08'18	44.96255 AU
retrograde	1650 Sep 11 10:11	12°II05'45		direct	1659 Mar 02 10:08	18°II08'34	
opposition	1650 Dec 03 00:26	11°II05'27	-10°-8'-9				
min. Earth dist.	1650 Dec 03 18:35	11°II04'34	46.13329 AU	conjunction	1659 Jun 10 20:00	19°II39'42	-7°-33'-27
direct	1651 Feb 22 16:50	10°II05'23		minimum elong	1659 Jun 10 20:10	19°II39'43	7°33'28
				max. Earth dist.	1659 Jun 09 12:53	19°II37'52	46.86279 AU
conjunction	1651 Jun 02 10:24	11°II34'10	-9°-35'-57	retrograde	1659 Sep 21 03:12	21°II12'45	
minimum elong	1651 Jun 02 10:35	11°II34'10	9°35'57	opposition	1659 Dec 12 03:33	20°II11'32	-7°-45'-2
max. Earth dist.	1651 Jun 01 13:13	11°II32'56	48.03798 AU	min. Earth dist.	1659 Dec 13 08:35	20°II10'07	44.79644 AU
retrograde	1651 Sep 12 17:47	13°II05'15		direct	1660 Mar 02 18:30	19°II10'15	
opposition	1651 Dec 04 05:44	12°II04'51	-9°-53'-18	max. Earth dist.	1660 Jun 09 18:39	20°II39'45	46.69611 AU
min. Earth dist.	1651 Dec 05 01:33	12°II03'54	45.99911 AU				
direct	1652 Feb 23 21:13	11°II04'41		conjunction	1660 Jun 11 03:45	20°II41'43	-7°-17'-2
				minimum elong	1660 Jun 11 03:54	20°II41'44	7°17'02
conjunction	1652 Jun 02 17:05	12°II33'43	-9°-21'-31	retrograde	1660 Sep 21 09:49	22°II15'02	
minimum elong	1652 Jun 02 17:15	12°II33'43	9°21'32	opposition	1660 Dec 12 09:42	21°II13'40	-7°-27'-50
max. Earth dist.	1652 Jun 01 19:40	12°II32'28	47.90400 AU	min. Earth dist.	1660 Dec 13 15:31	21°II12'12	44.62660 AU
retrograde	1652 Sep 13 02:49	14°II05'00		direct	1661 Mar 04 01:23	20°II12'11	
opposition	1652 Dec 04 10:58	13°II04'32	-9°-38'-11	max. Earth dist.	1661 Jun 11 01:22	21°II41'57	46.52571 AU
min. Earth dist.	1652 Dec 05 06:45	13°II03'35	45.86229 AU				
direct	1653 Feb 23 23:46	12°II04'14		conjunction	1661 Jun 12 11:41	21°II43'59	-7°00'-21
				minimum elong	1661 Jun 12 11:50	21°II44'00	7°00'23
conjunction	1653 Jun 03 23:46	13°II33'33	-9°-6'-49	retrograde	1661 Sep 22 16:08	23°II17'36	
minimum elong	1653 Jun 03 23:57	13°II33'34	9°06'50	opposition	1661 Dec 13 16:10	22°II16'05	-7°-10'-22
max. Earth dist.	1653 Jun 03 00:17	13°II32'11	47.76727 AU	min. Earth dist.	1661 Dec 14 23:46	22°II14'31	44.45334 AU
retrograde	1653 Sep 14 11:00	15°II05'05		direct	1662 Mar 05 08:54	21°II14'24	
opposition	1653 Dec 05 16:27	14°II04'32	-9°-22'-48	max. Earth dist.	1662 Jun 12 09:05	22°II44'29	46.35230 AU
min. Earth dist.	1653 Dec 06 13:52	14°II03'30	45.72265 AU				
direct	1654 Feb 25 03:35	13°II04'08		conjunction	1662 Jun 13 19:50	22°II46'33	-6°-43'-25
max. Earth dist.	1654 Jun 04 07:06	14°II32'21	47.62741 AU	minimum elong	1662 Jun 13 19:59	22°II46'34	6°43'25
				retrograde	1662 Sep 24 01:13	24°II20'28	
conjunction	1654 Jun 05 06:51	14°II33'44	-8°-51'-52	opposition	1662 Dec 14 22:32	23°II18'48	-6°-52'-36
minimum elong	1654 Jun 05 07:01	14°II33'45	8°51'53	min. Earth dist.	1662 Dec 16 06:07	23°II17'14	44.27731 AU
retrograde	1654 Sep 15 14:27	16°II05'30		direct	1663 Mar 06 14:02	22°II16'56	
opposition	1654 Dec 06 21:53	15°II04'52	-9°-7'-9	max. Earth dist.	1663 Jun 13 15:13	23°II47'16	46.17623 AU
min. Earth dist.	1654 Dec 07 20:21	15°II03'47	45.57956 AU				
direct	1655 Feb 26 12:12	14°II04'22		conjunction	1663 Jun 15 04:00	23°II49'28	-6°-26'-13
				minimum elong	1663 Jun 15 04:08	23°II49'28	6°26'14
conjunction	1655 Jun 06 13:56	15°II34'17	-8°-36'-40	retrograde	1663 Sep 25 11:33	25°II23'43	
minimum elong	1655 Jun 06 14:07	15°II34'17	8°36'41	opposition	1663 Dec 16 05:18	24°II21'54	-6°-34'-33
max. Earth dist.	1655 Jun 05 12:21	15°II32'47	47.48393 AU	min. Earth dist.	1663 Dec 17 14:29	24°II20'15	44.09899 AU
retrograde	1655 Sep 16 20:10	17°II06'18		direct	1664 Mar 06 18:03	23°II19'51	
opposition	1655 Dec 08 03:33	16°II05'35	-8°-51'-14	max. Earth dist.	1664 Jun 13 23:39	24°II50'35	45.99795 AU
min. Earth dist.	1655 Dec 09 02:47	16°II04'27	45.43256 AU				
direct	1656 Feb 27 19:19	15°II04'58		conjunction	1664 Jun 15 12:18	24°II52'47	-6°-8'-45
				minimum elong	1664 Jun 15 12:27	24°II52'48	6°08'46

retrograde	1664 Sep 25 18:17	26°II27'24		conjunction	1672 Jun 24 15:35	3°☾39'38	-3°-39'-22
opposition	1664 Dec 16 12:12	25°II25'26	-6°-16'-13	minimum elong	1672 Jun 24 15:41	3°☾39'38	3°39'23
min. Earth dist.	1664 Dec 17 21:45	25°II23'46	43.91842 AU	retrograde	1672 Oct 04 19:37	5°☾17'40	
direct	1665 Mar 08 02:45	24°II23'13		opposition	1672 Dec 25 02:09	4°☾14'26	-3°-39'-20
max. Earth dist.	1665 Jun 15 06:31	25°II54'17	45.81754 AU	min. Earth dist.	1672 Dec 26 20:40	4°☾12'15	42.35375 AU
				direct	1673 Mar 16 17:20	3°☾10'35	
conjunction	1665 Jun 16 20:51	25°II56'36	-5°-51'00	max. Earth dist.	1673 Jun 24 00:37	4°☾44'51	44.24551 AU
minimum elong	1665 Jun 16 20:59	25°II56'36	5°51'02				
retrograde	1665 Sep 27 01:51	27°II31'35		conjunction	1673 Jun 26 02:03	4°☾47'56	-3°-19'-30
opposition	1665 Dec 17 19:06	26°II29'30	-5°-57'-36	minimum elong	1673 Jun 26 02:08	4°☾47'57	3°19'31
min. Earth dist.	1665 Dec 19 05:21	26°II27'47	43.73571 AU	retrograde	1673 Oct 06 07:47	6°☾26'27	
direct	1666 Mar 09 10:53	25°II27'07		opposition	1673 Dec 26 10:48	5°☾22'59	-3°-18'-27
max. Earth dist.	1666 Jun 16 14:30	26°II58'35	45.63455 AU	min. Earth dist.	1673 Dec 28 07:21	5°☾20'41	42.14124 AU
				direct	1674 Mar 17 22:35	4°☾18'52	
conjunction	1666 Jun 18 05:47	27°II00'58	-5°-32'-59	max. Earth dist.	1674 Jun 25 11:20	5°☾53'39	44.03235 AU
minimum elong	1666 Jun 18 05:55	27°II00'58	5°33'00				
retrograde	1666 Sep 28 09:42	28°II36'22		conjunction	1674 Jun 27 12:49	5°☾56'45	-2°-59'-23
opposition	1666 Dec 19 02:25	27°II34'10	-5°-38'-41	minimum elong	1674 Jun 27 12:54	5°☾56'46	2°59'25
min. Earth dist.	1666 Dec 20 14:28	27°II32'21	43.55019 AU	retrograde	1674 Oct 07 18:23	7°☾35'45	
direct	1667 Mar 10 18:25	26°II31'37		opposition	1674 Dec 27 19:43	6°☾32'03	-2°-57'-17
max. Earth dist.	1667 Jun 17 22:43	28°II03'30	45.44856 AU	min. Earth dist.	1674 Dec 29 16:25	6°☾29'45	41.92620 AU
				direct	1675 Mar 19 08:17	5°☾27'40	
conjunction	1667 Jun 19 14:45	28°II05'56	-5°-14'-42	max. Earth dist.	1675 Jun 26 20:11	7°☾02'53	43.81692 AU
minimum elong	1667 Jun 19 14:52	28°II05'56	5°14'43				
retrograde	1667 Sep 29 19:27	29°II41'46		conjunction	1675 Jun 28 23:31	7°☾06'07	-2°-38'-59
opposition	1667 Dec 20 09:46	28°II39'27	-5°-19'-30	minimum elong	1675 Jun 28 23:35	7°☾06'08	2°39'00
min. Earth dist.	1667 Dec 21 22:00	28°II37'37	43.36132 AU	retrograde	1675 Oct 09 06:47	8°☾45'37	
direct	1668 Mar 11 00:32	27°II36'44		opposition	1675 Dec 29 04:54	7°☾41'42	-2°-35'-49
max. Earth dist.	1668 Jun 18 05:38	29°II08'57	45.25872 AU	min. Earth dist.	1675 Dec 31 02:33	7°☾39'19	41.70927 AU
				direct	1676 Mar 19 17:16	6°☾37'01	
conjunction	1668 Jun 20 00:01	29°II11'32	-4°-56'-9	max. Earth dist.	1676 Jun 27 07:02	8°☾12'49	43.59956 AU
minimum elong	1668 Jun 20 00:09	29°II11'33	4°56'10				
	1668 Jul 24 13:26	0°☾		conjunction	1676 Jun 29 10:44	8°☾16'06	-2°-18'-19
retrograde	1668 Sep 30 07:48	0°☾47'49		minimum elong	1676 Jun 29 10:47	8°☾16'06	2°18'21
	1668 Dec 08 12:23	30°RII		retrograde	1676 Oct 09 16:37	9°☾56'06	
opposition	1668 Dec 20 17:27	29°II45'20	-5°00'-1	opposition	1676 Dec 29 14:22	8°☾51'58	-2°-14'-3
min. Earth dist.	1668 Dec 22 07:51	29°II43'24	43.16844 AU	min. Earth dist.	1676 Dec 31 13:10	8°☾49'32	41.49057 AU
direct	1669 Mar 12 05:16	28°II42'26		direct	1677 Mar 21 04:25	7°☾47'02	
	1669 Jun 09 06:39	0°☾		max. Earth dist.	1677 Jun 28 17:34	9°☾23'22	43.38064 AU
max. Earth dist.	1669 Jun 19 14:52	0°☾15'08	45.06457 AU				
				conjunction	1677 Jun 30 22:11	9°☾26'44	-1°-57'-23
conjunction	1669 Jun 21 09:42	0°☾17'45	-4°-37'-21	minimum elong	1677 Jun 30 22:14	9°☾26'44	1°57'24
minimum elong	1669 Jun 21 09:48	0°☾17'45	4°37'21	retrograde	1677 Oct 11 02:55	11°☾07'18	
retrograde	1669 Oct 01 17:56	1°☾54'28		opposition	1677 Dec 31 00:02	10°☾02'58	-1°-52'00
opposition	1669 Dec 22 01:21	0°☾51'49	-4°-40'-16	min. Earth dist.	1678 Jan 01 22:51	10°☾00'30	41.27023 AU
min. Earth dist.	1669 Dec 23 16:37	0°☾49'50	42.97100 AU	direct	1678 Mar 22 14:32	8°☾57'46	
	1670 Feb 10 00:25	30°RII		max. Earth dist.	1678 Jun 30 03:41	10°☾34'38	43.15965 AU
direct	1670 Mar 13 13:49	29°II48'42					
	1670 Apr 14 00:40	0°☾		conjunction	1678 Jul 02 09:59	10°☾38'07	-1°-36'-11
max. Earth dist.	1670 Jun 20 22:11	1°☾21'44	44.86588 AU	minimum elong	1678 Jul 02 10:01	10°☾38'07	1°36'12
				retrograde	1678 Oct 12 14:46	12°☾19'18	
conjunction	1670 Jun 22 19:28	1°☾24'32	-4°-18'-17	opposition	1679 Jan 01 10:05	11°☾14'45	-1°-29'-39
minimum elong	1670 Jun 22 19:35	1°☾24'32	4°18'18	min. Earth dist.	1679 Jan 03 10:49	11°☾12'11	41.04778 AU
retrograde	1670 Oct 03 04:19	3°☾01'40		direct	1679 Mar 23 22:48	10°☾09'18	
opposition	1670 Dec 23 09:22	1°☾58'51	-4°-20'-15	max. Earth dist.	1679 Jul 01 15:51	11°☾46'50	42.93632 AU
min. Earth dist.	1670 Dec 25 01:56	1°☾56'47	42.76920 AU				
direct	1671 Mar 14 21:44	0°☾55'30		conjunction	1679 Jul 03 22:11	11°☾50'20	-1°-14'-42
max. Earth dist.	1671 Jun 22 07:06	2°☾28'57	44.66277 AU	minimum elong	1679 Jul 03 22:13	11°☾50'20	1°14'43
				retrograde	1679 Oct 14 04:15	13°☾32'08	
conjunction	1671 Jun 24 05:32	2°☾31'50	-3°-58'-57	opposition	1680 Jan 02 20:25	12°☾27'22	-1°-7'-1
minimum elong	1671 Jun 24 05:38	2°☾31'50	3°58'58	min. Earth dist.	1680 Jan 04 21:23	12°☾24'47	40.82266 AU
retrograde	1671 Oct 04 10:19	4°☾09'25		direct	1680 Mar 24 07:35	11°☾21'40	
opposition	1671 Dec 24 17:44	3°☾06'24	-3°-59'-56	max. Earth dist.	1680 Jul 02 01:47	12°☾59'44	42.70989 AU
min. Earth dist.	1671 Dec 26 11:59	3°☾04'14	42.56324 AU				
direct	1672 Mar 15 08:48	2°☾02'48		conjunction	1680 Jul 04 10:31	13°☾03'25	0°-52'-59
max. Earth dist.	1672 Jun 22 16:16	3°☾36'41	44.45588 AU	minimum elong	1680 Jul 04 10:33	13°☾03'25	0°52'59
				retrograde	1680 Oct 14 19:02	14°☾45'51	

opposition	1681 Jan 03 07:08	13° $\overline{54}$ 40'52	0°-44'-6	minimum elong	1688 Jul 15 03:08	23° $\overline{58}$ 18'59	2°09'56
min. Earth dist.	1681 Jan 05 09:51	13° $\overline{53}$ 38'11	40.59427 AU	retrograde	1688 Oct 25 10:29	25° $\overline{50}$ 07'05	
direct	1681 Mar 25 16:09	12° $\overline{52}$ 34'53		opposition	1689 Jan 13 08:50	23° $\overline{58}$ 59'50	2°29'06
max. Earth dist.	1681 Jul 03 14:06	14° $\overline{51}$ 13'37	42.47970 AU	min. Earth dist.	1689 Jan 15 19:29	23° $\overline{58}$ 56'35	38.65778 AU
				direct	1689 Apr 04 18:56	22° $\overline{58}$ 51'08	
conjunction	1681 Jul 05 23:35	14° $\overline{51}$ 17'22	0°-30'-59	max. Earth dist.	1689 Jul 14 01:12	24° $\overline{58}$ 35'34	40.53274 AU
minimum elong	1681 Jul 05 23:36	14° $\overline{51}$ 17'22	0°31'00				
retrograde	1681 Oct 16 06:54	16° $\overline{50}$ 00'27		conjunction	1689 Jul 16 19:00	24° $\overline{58}$ 40'06	2°33'50
opposition	1682 Jan 04 18:09	14° $\overline{55}$ 55'13	0°-20'-54	minimum elong	1689 Jul 16 18:55	24° $\overline{58}$ 40'06	2°33'49
min. Earth dist.	1682 Jan 06 22:10	14° $\overline{55}$ 52'27	40.36198 AU	retrograde	1689 Oct 27 01:19	26° $\overline{58}$ 29'02	
direct	1682 Mar 27 05:07	13° $\overline{54}$ 48'57		opposition	1690 Jan 14 22:36	25° $\overline{58}$ 21'29	2°54'25
max. Earth dist.	1682 Jul 05 01:40	15° $\overline{58}$ 28'17	42.24571 AU	min. Earth dist.	1690 Jan 17 08:56	25° $\overline{58}$ 18'14	38.40943 AU
				direct	1690 Apr 06 08:22	24° $\overline{58}$ 12'26	
conjunction	1682 Jul 07 12:51	15° $\overline{58}$ 32'10	0°-8'-46	max. Earth dist.	1690 Jul 15 15:48	25° $\overline{58}$ 57'40	40.28341 AU
minimum elong	1682 Jul 07 12:51	15° $\overline{58}$ 32'10	0°08'48				
behind sun begin	1682 Jul 07 07:15	15° $\overline{58}$ 31'49		conjunction	1690 Jul 18 11:15	26° $\overline{58}$ 02'21	2°57'57
behind sun end	1682 Jul 07 18:27	15° $\overline{58}$ 32'31		minimum elong	1690 Jul 18 11:10	26° $\overline{58}$ 02'20	2°57'58
retrograde	1682 Oct 17 19:40	17° $\overline{58}$ 15'54		retrograde	1690 Oct 28 18:28	27° $\overline{58}$ 52'09	
asc. node	1682 Nov 27 10:30	16° $\overline{58}$ 56'28		opposition	1691 Jan 16 13:03	26° $\overline{58}$ 44'19	3°19'58
opposition	1683 Jan 06 05:30	16° $\overline{58}$ 10'26	0°02'34	min. Earth dist.	1691 Jan 19 01:05	26° $\overline{58}$ 40'57	38.16056 AU
min. Earth dist.	1683 Jan 08 10:12	16° $\overline{58}$ 07'36	40.12602 AU	direct	1691 Apr 07 19:13	25° $\overline{58}$ 34'55	
direct	1683 Mar 28 17:34	15° $\overline{58}$ 03'50		max. Earth dist.	1691 Jul 17 08:45	27° $\overline{58}$ 21'06	40.03324 AU
max. Earth dist.	1683 Jul 06 13:27	16° $\overline{58}$ 43'47	42.00787 AU				
				conjunction	1691 Jul 20 03:54	27° $\overline{58}$ 25'48	3°22'17
conjunction	1683 Jul 09 02:20	16° $\overline{58}$ 47'49	0°13'47	minimum elong	1691 Jul 20 03:48	27° $\overline{58}$ 25'47	3°22'16
minimum elong	1683 Jul 09 02:20	16° $\overline{58}$ 47'49	0°13'47	retrograde	1691 Oct 30 11:59	29° $\overline{58}$ 16'30	
behind sun begin	1683 Jul 08 23:04	16° $\overline{58}$ 47'36		opposition	1692 Jan 18 03:53	28° $\overline{58}$ 08'22	3°45'43
behind sun end	1683 Jul 09 05:36	16° $\overline{58}$ 48'01		min. Earth dist.	1692 Jan 20 16:00	28° $\overline{58}$ 04'59	37.91061 AU
retrograde	1683 Oct 19 08:05	18° $\overline{58}$ 32'14		direct	1692 Apr 08 09:42	26° $\overline{58}$ 58'38	
opposition	1684 Jan 07 17:17	17° $\overline{58}$ 26'29	0°26'19	max. Earth dist.	1692 Jul 17 23:56	28° $\overline{58}$ 45'38	39.78167 AU
min. Earth dist.	1684 Jan 10 00:03	17° $\overline{58}$ 23'31	39.88654 AU				
direct	1684 Mar 29 04:18	16° $\overline{58}$ 19'34		conjunction	1692 Jul 20 21:05	28° $\overline{58}$ 50'31	3°46'47
max. Earth dist.	1684 Jul 07 02:56	18° $\overline{58}$ 00'12	41.76684 AU	minimum elong	1692 Jul 20 20:58	28° $\overline{58}$ 50'30	3°46'48
					1692 Sep 02 23:58	0° $\overline{58}$	
conjunction	1684 Jul 09 16:15	18° $\overline{58}$ 04'17	0°36'31	retrograde	1692 Oct 31 08:53	0° $\overline{58}$ 42'08	
minimum elong	1684 Jul 09 16:14	18° $\overline{58}$ 04'17	0°36'31		1692 Dec 29 21:16	30° $\overline{58}$ 42'08	
retrograde	1684 Oct 19 21:38	19° $\overline{58}$ 49'24		opposition	1693 Jan 18 19:06	29° $\overline{58}$ 33'41	4°11'42
opposition	1685 Jan 08 05:08	18° $\overline{58}$ 43'22	0°50'21	min. Earth dist.	1693 Jan 21 08:26	29° $\overline{58}$ 30'13	37.65917 AU
min. Earth dist.	1685 Jan 10 11:59	18° $\overline{58}$ 40'23	39.64418 AU	direct	1693 Apr 09 23:26	28° $\overline{58}$ 23'34	
direct	1685 Mar 30 15:56	17° $\overline{58}$ 36'06			1693 Jul 12 22:14	0° $\overline{58}$	
max. Earth dist.	1685 Jul 08 14:54	19° $\overline{58}$ 17'21	41.52305 AU	max. Earth dist.	1693 Jul 19 17:23	0° $\overline{58}$ 11'33	39.52804 AU
conjunction	1685 Jul 11 06:28	19° $\overline{58}$ 21'36	0°59'31	conjunction	1693 Jul 22 15:02	0° $\overline{58}$ 16'30	4°11'29
minimum elong	1685 Jul 11 06:26	19° $\overline{58}$ 21'36	0°59'31	minimum elong	1693 Jul 22 14:54	0° $\overline{58}$ 16'29	4°11'29
retrograde	1685 Oct 21 14:36	21° $\overline{58}$ 07'26		retrograde	1693 Nov 02 02:55	2° $\overline{58}$ 09'02	
opposition	1686 Jan 09 17:30	20° $\overline{58}$ 01'05	1°14'39	opposition	1694 Jan 20 11:03	1° $\overline{58}$ 00'15	4°37'53
min. Earth dist.	1686 Jan 12 02:02	19° $\overline{58}$ 58'01	39.39953 AU	min. Earth dist.	1694 Jan 23 01:40	0° $\overline{58}$ 56'42	37.40556 AU
direct	1686 Apr 01 01:38	18° $\overline{58}$ 53'28			1694 Mar 14 09:01	30° $\overline{58}$ 42'08	
max. Earth dist.	1686 Jul 10 05:38	20° $\overline{58}$ 35'32	41.27708 AU	direct	1694 Apr 11 15:41	29° $\overline{58}$ 49'45	
					1694 May 09 18:55	0° $\overline{58}$	
conjunction	1686 Jul 12 21:07	20° $\overline{58}$ 39'48	1°22'45	max. Earth dist.	1694 Jul 21 10:25	1° $\overline{58}$ 38'38	39.27228 AU
minimum elong	1686 Jul 12 21:04	20° $\overline{58}$ 39'48	1°22'46				
retrograde	1686 Oct 23 05:43	22° $\overline{58}$ 26'22		conjunction	1694 Jul 24 09:18	1° $\overline{58}$ 43'43	4°36'21
opposition	1687 Jan 11 06:11	21° $\overline{58}$ 19'42	1°39'13	minimum elong	1694 Jul 24 09:09	1° $\overline{58}$ 43'43	4°36'22
min. Earth dist.	1687 Jan 13 15:12	21° $\overline{58}$ 16'35	39.15309 AU	retrograde	1694 Nov 03 21:03	3° $\overline{58}$ 37'12	
direct	1687 Apr 02 15:00	20° $\overline{58}$ 11'44		opposition	1695 Jan 22 03:21	2° $\overline{58}$ 28'04	5°04'16
max. Earth dist.	1687 Jul 11 19:00	21° $\overline{58}$ 54'30	41.02975 AU	min. Earth dist.	1695 Jan 24 18:15	2° $\overline{58}$ 24'28	37.14995 AU
				direct	1695 Apr 13 09:07	1° $\overline{58}$ 17'09	
conjunction	1687 Jul 14 11:56	21° $\overline{58}$ 58'55	1°46'13	max. Earth dist.	1695 Jul 23 03:39	3° $\overline{58}$ 06'56	39.01435 AU
minimum elong	1687 Jul 14 11:53	21° $\overline{58}$ 58'54	1°46'13				
retrograde	1687 Oct 24 21:37	23° $\overline{58}$ 46'14		conjunction	1695 Jul 26 04:09	3° $\overline{58}$ 12'11	5°01'23
opposition	1688 Jan 12 19:14	22° $\overline{58}$ 39'16	2°04'02	minimum elong	1695 Jul 26 04:00	3° $\overline{58}$ 12'10	5°01'22
min. Earth dist.	1688 Jan 15 04:41	22° $\overline{58}$ 36'06	38.90578 AU	retrograde	1695 Nov 05 14:35	5° $\overline{58}$ 06'37	
direct	1688 Apr 03 03:48	21° $\overline{58}$ 30'55		opposition	1696 Jan 23 20:17	3° $\overline{58}$ 57'07	5°30'49
max. Earth dist.	1688 Jul 12 09:36	23° $\overline{58}$ 14'30	40.78146 AU	min. Earth dist.	1696 Jan 26 12:59	3° $\overline{58}$ 53'23	36.89254 AU
				direct	1696 Apr 14 01:21	2° $\overline{58}$ 45'46	
conjunction	1688 Jul 15 03:12	23° $\overline{58}$ 18'59	2°09'55	max. Earth dist.	1696 Jul 23 22:56	4° $\overline{58}$ 36'35	38.75486 AU

conjunction	1696 Jul 26 23:27	4°♏41'52	5°26'33	conjunction	1704 Aug 10 06:17	17°♏29'38	8°50'02
minimum elong	1696 Jul 26 23:16	4°♏41'51	5°26'33	minimum elong	1704 Aug 10 05:59	17°♏29'36	8°50'02
retrograde	1696 Nov 06 09:01	6°♏37'16		retrograde	1704 Nov 20 22:11	19°♏34'04	
opposition	1697 Jan 24 13:37	5°♏27'24	5°57'32	opposition	1705 Feb 07 05:48	18°♏21'09	9°33'45
min. Earth dist.	1697 Jan 27 06:09	5°♏23'39	36.63380 AU	min. Earth dist.	1705 Feb 10 02:02	18°♏16'59	34.58590 AU
direct	1697 Apr 15 17:58	4°♏15'35		direct	1705 Apr 29 00:37	17°♏05'50	
max. Earth dist.	1697 Jul 25 16:53	6°♏07'19	38.49413 AU	max. Earth dist.	1705 Aug 09 02:54	19°♏07'10	36.43345 AU
conjunction	1697 Jul 28 19:18	6°♏12'47	5°51'50	conjunction	1705 Aug 12 07:21	19°♏13'13	9°15'20
minimum elong	1697 Jul 28 19:07	6°♏12'47	5°51'50	minimum elong	1705 Aug 12 07:03	19°♏13'11	9°15'20
retrograde	1697 Nov 08 05:54	8°♏09'12		retrograde	1705 Nov 23 00:13	21°♏18'55	
opposition	1698 Jan 26 07:28	6°♏58'56	6°24'23	opposition	1706 Feb 09 04:55	20°♏05'37	10°00'40
min. Earth dist.	1698 Jan 29 01:29	6°♏55'04	36.37441 AU	min. Earth dist.	1706 Feb 12 01:37	20°♏01'24	34.33496 AU
direct	1698 Apr 17 09:35	5°♏46'40		direct	1706 Apr 30 23:29	18°♏49'52	
max. Earth dist.	1698 Jul 27 13:44	7°♏39'30	38.23291 AU	max. Earth dist.	1706 Aug 11 03:18	20°♏52'27	36.18025 AU
conjunction	1698 Jul 30 15:48	7°♏45'00	6°17'13	conjunction	1706 Aug 14 08:57	20°♏58'39	9°40'29
minimum elong	1698 Jul 30 15:35	7°♏44'59	6°17'13	minimum elong	1706 Aug 14 08:37	20°♏58'37	9°40'29
retrograde	1698 Nov 10 02:52	9°♏42'26		retrograde	1706 Nov 25 04:20	23°♏05'38	
opposition	1699 Jan 28 01:59	8°♏31'45	6°51'20	opposition	1707 Feb 11 04:48	21°♏51'57	10°27'26
min. Earth dist.	1699 Jan 30 20:10	8°♏27'52	36.11495 AU	min. Earth dist.	1707 Feb 14 01:35	21°♏47'42	34.08464 AU
direct	1699 Apr 19 04:17	7°♏19'02		direct	1707 May 02 22:14	20°♏35'44	
max. Earth dist.	1699 Jul 29 09:16	9°♏12'54	37.97201 AU	max. Earth dist.	1707 Aug 13 05:20	22°♏39'40	35.92743 AU
conjunction	1699 Aug 01 12:27	9°♏18'32	6°42'41	conjunction	1707 Aug 16 11:16	22°♏45'57	10°05'30
minimum elong	1699 Aug 01 12:14	9°♏18'31	6°42'40	minimum elong	1707 Aug 16 10:57	22°♏45'55	10°05'30
retrograde	1699 Nov 12 02:21	11°♏17'02		retrograde	1707 Nov 27 07:11	24°♏54'13	
opposition	1700 Jan 29 20:59	10°♏05'57	7°18'23	opposition	1708 Feb 13 05:33	23°♏40'08	10°54'03
min. Earth dist.	1700 Feb 01 15:17	10°♏02'02	35.85635 AU	min. Earth dist.	1708 Feb 16 03:25	23°♏35'47	33.83492 AU
direct	1700 Apr 20 22:46	8°♏52'46		direct	1708 May 03 23:19	22°♏23'26	
max. Earth dist.	1700 Jul 31 06:44	10°♏47'48	37.71195 AU	max. Earth dist.	1708 Aug 14 08:25	24°♏28'43	35.67552 AU
conjunction	1700 Aug 03 10:00	10°♏53'29	7°08'11	conjunction	1708 Aug 17 14:22	24°♏35'04	10°30'17
minimum elong	1700 Aug 03 09:45	10°♏53'28	7°08'10	minimum elong	1708 Aug 17 14:01	24°♏35'02	10°30'17
retrograde	1700 Nov 13 23:21	12°♏53'05		retrograde	1708 Nov 28 12:11	26°♏44'38	
opposition	1701 Jan 31 16:37	11°♏41'37	7°45'29	opposition	1709 Feb 14 06:43	25°♏30'07	11°20'26
min. Earth dist.	1701 Feb 03 11:48	11°♏37'37	35.59901 AU	min. Earth dist.	1709 Feb 17 04:01	25°♏25'46	33.58637 AU
direct	1701 Apr 22 18:21	10°♏27'59		direct	1709 May 06 01:26	24°♏12'55	
max. Earth dist.	1701 Aug 02 04:54	12°♏24'13	37.45348 AU	max. Earth dist.	1709 Aug 16 11:22	26°♏19'31	35.42483 AU
conjunction	1701 Aug 05 08:06	12°♏29'57	7°33'42	conjunction	1709 Aug 19 18:17	26°♏26'00	10°54'50
minimum elong	1701 Aug 05 07:52	12°♏29'56	7°33'41	minimum elong	1709 Aug 19 17:56	26°♏25'59	10°54'50
retrograde	1701 Nov 15 21:39	14°♏30'41		retrograde	1709 Nov 30 15:33	28°♏36'53	
opposition	1702 Feb 02 12:51	13°♏18'52	8°12'35	opposition	1710 Feb 16 08:56	27°♏21'55	11°46'32
min. Earth dist.	1702 Feb 05 07:21	13°♏14'52	35.34345 AU	min. Earth dist.	1710 Feb 19 07:28	27°♏17'28	33.33954 AU
direct	1702 Apr 24 14:51	12°♏04'48		direct	1710 May 08 01:20	26°♏04'13	
max. Earth dist.	1702 Aug 04 02:35	14°♏02'12	37.19658 AU	max. Earth dist.	1710 Aug 18 16:53	28°♏12'16	35.17620 AU
conjunction	1702 Aug 07 06:48	14°♏08'04	7°59'12	conjunction	1710 Aug 21 22:46	28°♏18'45	11°19'03
minimum elong	1702 Aug 07 06:32	14°♏08'03	7°59'12	minimum elong	1710 Aug 21 22:24	28°♏18'43	11°19'03
retrograde	1702 Sep 05 06:37	15°♏		retrograde	1710 Oct 18 08:38	0°♏	
opposition	1702 Nov 17 20:29	16°♏10'00		opposition	1710 Dec 02 18:39	0°♏30'57	
min. Earth dist.	1703 Feb 02 21:32	15°♏		min. Earth dist.	1711 Jan 18 07:14	30°♏	
direct	1703 Feb 04 09:52	14°♏57'49	8°39'42	direct	1711 Feb 18 11:49	29°♏15'32	12°12'18
max. Earth dist.	1703 Feb 07 05:36	14°♏53'43	35.08964 AU	max. Earth dist.	1711 Feb 21 09:25	29°♏11'06	33.09514 AU
conjunction	1703 Apr 26 08:43	13°♏43'20		conjunction	1711 May 10 04:16	27°♏57'19	
minimum elong	1703 Jul 13 20:17	15°♏		minimum elong	1711 Aug 17 13:16	0°♏	
retrograde	1703 Aug 06 02:49	15°♏42'04	36.94131 AU	retrograde	1711 Aug 20 21:09	0°♏06'41	34.93037 AU
opposition	1703 Aug 09 06:15	15°♏47'56	8°24'39	opposition	1711 Aug 24 03:57	0°♏13'19	11°42'55
min. Earth dist.	1703 Aug 09 05:59	15°♏47'55	8°24'39	min. Earth dist.	1711 Aug 24 03:35	0°♏13'17	11°42'55
direct	1703 Nov 19 19:51	17°♏51'06		direct	1711 Dec 05 00:29	2°♏26'51	
max. Earth dist.	1704 Feb 06 07:25	16°♏38'33	9°06'45	max. Earth dist.	1712 Feb 20 15:27	1°♏10'59	12°37'39
conjunction	1704 Feb 09 02:35	16°♏34'28	34.83727 AU	conjunction	1712 Feb 23 13:24	1°♏06'30	32.85417 AU
minimum elong	1704 Apr 27 05:04	15°♏23'40		minimum elong	1712 Apr 18 05:50	30°♏	
retrograde	1704 Aug 07 01:22	17°♏23'36	36.68712 AU	retrograde	1712 May 11 04:35	29°♏52'15	
opposition				opposition	1712 Jun 03 01:26	0°♏	

max. Earth dist.	1712 Aug 22 04:42	2° \mathring{M} 03'10	34.68820 AU	minimum elong	1720 Sep 11 14:43	18° \mathring{M} 55'42	14°50'05
				retrograde	1720 Dec 23 20:49	21° \mathring{M} 21'53	
conjunction	1712 Aug 25 09:59	2° \mathring{M} 09'44	12°06'20	opposition	1721 Mar 10 16:04	20° \mathring{M} 02'27	15°55'49
minimum elong	1712 Aug 25 09:36	2° \mathring{M} 09'42	12°06'20	min. Earth dist.	1721 Mar 13 09:05	19° \mathring{M} 58'03	30.89248 AU
retrograde	1712 Dec 06 06:09	4° \mathring{M} 24'38		direct	1721 May 29 18:46	18° \mathring{M} 39'46	
opposition	1713 Feb 21 20:03	3° \mathring{M} 08'19	13°02'32	max. Earth dist.	1721 Sep 11 05:50	21° \mathring{M} 04'27	32.72096 AU
min. Earth dist.	1713 Feb 24 17:23	3° \mathring{M} 03'50	32.61714 AU				
direct	1713 May 13 07:46	1° \mathring{M} 49'05		conjunction	1721 Sep 14 04:28	21° \mathring{M} 11'00	15°06'39
max. Earth dist.	1713 Aug 24 11:12	4° \mathring{M} 01'26	34.45044 AU	minimum elong	1721 Sep 14 04:08	21° \mathring{M} 10'58	15°06'39
				retrograde	1721 Dec 26 09:37	23° \mathring{M} 38'28	
conjunction	1713 Aug 27 16:42	4° \mathring{M} 08'04	12°29'14	opposition	1722 Mar 13 04:39	22° \mathring{M} 18'39	16°13'12
minimum elong	1713 Aug 27 16:19	4° \mathring{M} 08'02	12°29'15	min. Earth dist.	1722 Mar 15 20:56	22° \mathring{M} 14'17	30.69853 AU
retrograde	1713 Dec 08 15:17	6° \mathring{M} 24'21		direct	1722 Jun 01 05:53	20° \mathring{M} 55'34	
opposition	1714 Feb 24 01:20	5° \mathring{M} 07'36	13°26'51	max. Earth dist.	1722 Sep 13 20:17	23° \mathring{M} 21'39	32.52756 AU
min. Earth dist.	1714 Feb 26 21:59	5° \mathring{M} 03'09	32.38493 AU				
direct	1714 May 15 12:11	3° \mathring{M} 47'54		conjunction	1722 Sep 16 18:24	23° \mathring{M} 28'11	15°22'05
max. Earth dist.	1714 Aug 26 20:01	6° \mathring{M} 01'49	34.21754 AU	minimum elong	1722 Sep 16 18:04	23° \mathring{M} 28'09	15°22'05
				retrograde	1722 Dec 29 01:30	25° \mathring{M} 56'58	
conjunction	1714 Aug 30 00:21	6° \mathring{M} 08'25	12°51'34	opposition	1723 Mar 15 17:58	24° \mathring{M} 36'45	16°29'21
minimum elong	1714 Aug 29 23:58	6° \mathring{M} 08'23	12°51'34	min. Earth dist.	1723 Mar 18 08:40	24° \mathring{M} 32'29	30.51094 AU
retrograde	1714 Dec 10 23:55	8° \mathring{M} 26'07		direct	1723 Jun 03 18:49	23° \mathring{M} 13'16	
opposition	1715 Feb 26 07:44	7° \mathring{M} 08'57	13°50'32	max. Earth dist.	1723 Sep 16 13:01	25° \mathring{M} 40'52	32.34086 AU
min. Earth dist.	1715 Mar 01 04:20	7° \mathring{M} 04'28	32.15768 AU				
direct	1715 May 17 18:15	5° \mathring{M} 48'49		conjunction	1723 Sep 19 09:02	25° \mathring{M} 47'16	15°36'18
max. Earth dist.	1715 Aug 29 04:54	8° \mathring{M} 04'16	33.98983 AU	minimum elong	1723 Sep 19 08:44	25° \mathring{M} 47'14	15°36'18
				retrograde	1723 Dec 31 16:17	28° \mathring{M} 17'19	
conjunction	1715 Sep 01 08:32	8° \mathring{M} 10'52	13°13'16	opposition	1724 Mar 17 08:13	26° \mathring{M} 56'42	16°44'10
minimum elong	1715 Sep 01 08:10	8° \mathring{M} 10'50	13°13'16	min. Earth dist.	1724 Mar 19 22:20	26° \mathring{M} 52'27	30.33030 AU
retrograde	1715 Dec 13 10:41	10° \mathring{M} 29'59		direct	1724 Jun 05 09:01	25° \mathring{M} 32'49	
opposition	1716 Feb 28 14:46	9° \mathring{M} 12'26	14°13'31	max. Earth dist.	1724 Sep 18 05:50	28° \mathring{M} 01'51	32.16193 AU
min. Earth dist.	1716 Mar 02 09:58	9° \mathring{M} 08'02	31.93548 AU				
direct	1716 May 19 01:21	7° \mathring{M} 51'52		conjunction	1724 Sep 21 00:18	28° \mathring{M} 08'09	15°49'13
max. Earth dist.	1716 Aug 30 14:31	10° \mathring{M} 08'52	33.76685 AU	minimum elong	1724 Sep 21 00:00	28° \mathring{M} 08'07	15°49'13
					1724 Nov 14 23:14	0° \mathring{A}	
conjunction	1716 Sep 02 17:50	10° \mathring{M} 15'30	13°34'16	retrograde	1725 Jan 02 09:17	0° \mathring{A} 39'25	
minimum elong	1716 Sep 02 17:26	10° \mathring{M} 15'28	13°34'16		1725 Feb 21 14:10	30° \mathring{R} \mathring{M}	
retrograde	1716 Dec 14 20:36	12° \mathring{M} 36'03		opposition	1725 Mar 19 23:02	29° \mathring{M} 18'27	16°57'33
opposition	1717 Mar 01 22:45	11° \mathring{M} 18'08	14°35'46	min. Earth dist.	1725 Mar 22 10:35	29° \mathring{M} 14'21	30.15766 AU
min. Earth dist.	1717 Mar 04 18:33	11° \mathring{M} 13'39	31.71792 AU	direct	1725 Jun 08 00:26	27° \mathring{M} 54'12	
direct	1717 May 21 07:27	9° \mathring{M} 57'08			1725 Sep 10 03:58	0° \mathring{A}	
max. Earth dist.	1717 Sep 02 02:04	12° \mathring{M} 15'45	33.54851 AU	max. Earth dist.	1725 Sep 20 23:47	0° \mathring{A} 24'38	31.99146 AU
conjunction	1717 Sep 05 03:59	12° \mathring{M} 22'20	13°54'31	conjunction	1725 Sep 23 16:21	0° \mathring{A} 30'48	16°00'45
minimum elong	1717 Sep 05 03:37	12° \mathring{M} 22'18	13°54'31	minimum elong	1725 Sep 23 16:06	0° \mathring{A} 30'47	16°00'45
retrograde	1717 Dec 17 08:26	14° \mathring{M} 44'18		retrograde	1726 Jan 05 02:04	3° \mathring{A} 03'15	
opposition	1718 Mar 04 07:43	13° \mathring{M} 26'01	14°57'11	opposition	1726 Mar 22 14:58	1° \mathring{A} 41'58	17°09'23
min. Earth dist.	1718 Mar 07 02:08	13° \mathring{M} 21'36	31.50477 AU	min. Earth dist.	1726 Mar 25 01:41	1° \mathring{A} 37'54	29.99376 AU
direct	1718 May 23 16:16	12° \mathring{M} 04'36		direct	1726 Jun 10 14:46	0° \mathring{A} 17'23	
max. Earth dist.	1718 Sep 04 12:35	14° \mathring{M} 24'40	33.33450 AU	max. Earth dist.	1726 Sep 23 19:00	2° \mathring{A} 49'16	31.83046 AU
conjunction	1718 Sep 07 14:47	14° \mathring{M} 31'21	14°13'57	conjunction	1726 Sep 26 08:48	2° \mathring{A} 55'13	16°10'47
minimum elong	1718 Sep 07 14:24	14° \mathring{M} 31'19	14°13'56	minimum elong	1726 Sep 26 08:33	2° \mathring{A} 55'11	16°10'47
retrograde	1718 Dec 19 20:05	16° \mathring{M} 54'44		retrograde	1727 Jan 07 21:05	5° \mathring{A} 28'48	
opposition	1719 Mar 06 17:41	15° \mathring{M} 36'04	15°17'43	opposition	1727 Mar 25 07:31	4° \mathring{A} 07'13	17°19'36
min. Earth dist.	1719 Mar 09 12:24	15° \mathring{M} 31'36	31.29603 AU	min. Earth dist.	1727 Mar 27 15:15	4° \mathring{A} 03'20	29.83919 AU
direct	1719 May 25 23:02	14° \mathring{M} 14'14		direct	1727 Jun 13 08:13	2° \mathring{A} 42'21	
max. Earth dist.	1719 Sep 07 02:12	16° \mathring{M} 35'55	33.12505 AU	max. Earth dist.	1727 Sep 26 13:52	5° \mathring{A} 15'32	31.67909 AU
conjunction	1719 Sep 10 02:35	16° \mathring{M} 42'30	14°32'30	conjunction	1727 Sep 29 02:02	5° \mathring{A} 21'22	16°19'16
minimum elong	1719 Sep 10 02:14	16° \mathring{M} 42'28	14°32'30	minimum elong	1727 Sep 29 01:50	5° \mathring{A} 21'21	16°19'16
retrograde	1719 Dec 22 07:09	19° \mathring{M} 07'16		retrograde	1728 Jan 10 14:34	7° \mathring{A} 56'03	
opposition	1720 Mar 08 04:25	17° \mathring{M} 48'14	15°37'17	opposition	1728 Mar 27 00:45	6° \mathring{A} 34'12	17°28'06
min. Earth dist.	1720 Mar 10 21:57	17° \mathring{M} 43'49	31.09176 AU	min. Earth dist.	1728 Mar 29 07:27	6° \mathring{A} 30'24	29.69416 AU
direct	1720 May 27 09:31	16° \mathring{M} 25'59		direct	1728 Jun 14 23:20	5° \mathring{A} 09'06	
max. Earth dist.	1720 Sep 08 14:22	18° \mathring{M} 49'04	32.92040 AU	max. Earth dist.	1728 Sep 28 10:58	7° \mathring{A} 43'39	31.53751 AU
conjunction	1720 Sep 11 15:05	18° \mathring{M} 55'44	14°50'05	conjunction	1728 Sep 30 19:56	7° \mathring{A} 49'13	16°26'07

minimum elong	1728 Sep 30 19:44	7° ♂ 49'12	16°26'07			1737 Apr 04 02:21	30° ♂ ♂	
retrograde	1729 Jan 12 08:57	10° ♂ 24'56		opposition		1737 Apr 19 15:56	29° ♂ 34'01	17°19'53
opposition	1729 Mar 29 18:49	9° ♂ 02'52	17°34'50	min. Earth dist.		1737 Apr 21 02:15	29° ♂ 31'35	28.80144 AU
min. Earth dist.	1729 Mar 31 22:52	8° ♂ 59'13	29.55834 AU	direct		1737 Jul 08 09:37	28° ♂ 07'40	
direct	1729 Jun 17 17:34	7° ♂ 37'34				1737 Oct 02 00:05	0° ♂ ♂	
max. Earth dist.	1729 Oct 01 06:35	10° ♂ 13'14	31.40531 AU	max. Earth dist.		1737 Oct 22 20:52	0° ♂ ♂49'40	30.69113 AU
conjunction	1729 Oct 03 14:15	10° ♂ 18'42	16°31'18	conjunction		1737 Oct 24 06:07	0° ♂ ♂53'02	16°08'09
minimum elong	1729 Oct 03 14:07	10° ♂ 18'41	16°31'18	minimum elong		1737 Oct 24 06:16	0° ♂ ♂53'03	16°08'09
retrograde	1730 Jan 15 05:07	12° ♂ 55'22		retrograde		1738 Feb 04 21:28	3° ♂ ♂33'53	
opposition	1730 Apr 01 13:38	11° ♂ 33'06	17°39'46	opposition		1738 Apr 22 14:06	2° ♂ ♂10'24	17°08'53
min. Earth dist.	1730 Apr 03 16:04	11° ♂ 29'34	29.43167 AU	min. Earth dist.		1738 Apr 23 20:17	2° ♂ ♂08'16	28.75291 AU
direct	1730 Jun 20 09:52	10° ♂ 07'36		direct		1738 Jul 11 09:50	0° ♂ ♂44'04	
max. Earth dist.	1730 Oct 04 05:01	12° ♂ 44'31	31.28241 AU	max. Earth dist.		1738 Oct 25 20:25	3° ♂ ♂26'23	30.65061 AU
conjunction	1730 Oct 06 09:16	12° ♂ 49'41	16°34'47	conjunction		1738 Oct 27 02:34	3° ♂ ♂29'27	15°56'45
minimum elong	1730 Oct 06 09:08	12° ♂ 49'40	16°34'47	minimum elong		1738 Oct 27 02:46	3° ♂ ♂29'28	15°56'46
retrograde	1731 Jan 17 23:15	15° ♂ 27'13		retrograde		1739 Feb 07 18:15	6° ♂ ♂10'23	
opposition	1731 Apr 04 09:09	14° ♂ 04'45	17°42'50	opposition		1739 Apr 25 12:24	4° ♂ ♂46'52	16°55'48
min. Earth dist.	1731 Apr 06 09:28	14° ♂ 01'21	29.31382 AU	min. Earth dist.		1739 Apr 26 16:07	4° ♂ ♂44'54	28.71668 AU
direct	1731 Jun 23 04:43	12° ♂ 39'05		direct		1739 Jul 14 07:34	3° ♂ ♂20'35	
max. Earth dist.	1731 Oct 07 01:36	15° ♂ 16'55	31.16869 AU					
conjunction	1731 Oct 09 04:30	15° ♂ 21'59	16°36'30	conjunction		1739 Oct 29 22:57	6° ♂ ♂05'53	15°43'26
minimum elong	1731 Oct 09 04:26	15° ♂ 21'58	16°36'30	minimum elong		1739 Oct 29 23:11	6° ♂ ♂05'54	15°43'25
retrograde	1732 Jan 20 19:16	18° ♂ 00'18		max. Earth dist.		1739 Oct 28 20:54	6° ♂ ♂03'15	30.62287 AU
opposition	1732 Apr 06 05:10	16° ♂ 37'39	17°43'59	retrograde		1740 Feb 10 14:45	8° ♂ ♂46'49	
min. Earth dist.	1732 Apr 08 03:13	16° ♂ 34'25	29.20488 AU	opposition		1740 Apr 27 10:42	7° ♂ ♂23'20	16°40'39
direct	1732 Jun 24 23:43	15° ♂ 11'49		min. Earth dist.		1740 Apr 28 10:29	7° ♂ ♂21'39	28.69267 AU
max. Earth dist.	1732 Oct 09 00:53	17° ♂ 50'41	31.06409 AU	direct		1740 Jul 16 07:04	5° ♂ ♂57'09	
conjunction	1732 Oct 11 00:25	17° ♂ 55'26	16°36'26	conjunction		1740 Oct 31 19:10	8° ♂ ♂42'17	15°28'14
minimum elong	1732 Oct 11 00:22	17° ♂ 55'26	16°36'26	minimum elong		1740 Oct 31 19:25	8° ♂ ♂42'18	15°28'14
retrograde	1733 Jan 22 14:11	20° ♂ 34'26		max. Earth dist.		1740 Oct 30 19:44	8° ♂ ♂39'54	30.60756 AU
opposition	1733 Apr 09 01:46	19° ♂ 11'36	17°43'12	retrograde		1741 Feb 12 12:34	11° ♂ ♂23'07	
min. Earth dist.	1733 Apr 10 22:14	19° ♂ 08'28	29.10474 AU	opposition		1741 Apr 30 09:00	9° ♂ ♂59'42	16°23'29
direct	1733 Jun 27 19:26	17° ♂ 45'38		min. Earth dist.		1741 May 01 05:55	9° ♂ ♂58'14	28.68085 AU
max. Earth dist.	1733 Oct 11 22:40	20° ♂ 25'14	30.96892 AU	direct		1741 Jul 19 04:43	8° ♂ ♂33'41	
conjunction	1733 Oct 13 20:28	20° ♂ 29'49	16°34'33	conjunction		1741 Nov 03 15:21	11° ♂ ♂18'32	15°11'12
minimum elong	1733 Oct 13 20:28	20° ♂ 29'50	16°34'32	minimum elong		1741 Nov 03 15:38	11° ♂ ♂18'33	15°11'12
retrograde	1734 Jan 25 11:21	23° ♂ 09'24		max. Earth dist.		1741 Nov 02 20:19	11° ♂ ♂16'36	30.60451 AU
opposition	1734 Apr 11 22:49	21° ♂ 46'25	17°40'26	retrograde		1742 Feb 15 08:12	13° ♂ ♂59'11	
min. Earth dist.	1734 Apr 13 16:08	21° ♂ 43'30	29.01389 AU	opposition		1742 May 03 07:24	12° ♂ ♂35'52	16°04'22
direct	1734 Jun 30 15:58	20° ♂ 20'18		min. Earth dist.		1742 May 04 01:07	12° ♂ ♂34'37	28.68065 AU
max. Earth dist.	1734 Oct 14 22:16	23° ♂ 00'42	30.88342 AU	direct		1742 Jul 22 03:58	11° ♂ ♂10'03	
conjunction	1734 Oct 16 16:45	23° ♂ 04'58	16°30'48	conjunction		1742 Nov 06 11:02	13° ♂ ♂54'29	14°52'25
minimum elong	1734 Oct 16 16:46	23° ♂ 04'58	16°30'48	minimum elong		1742 Nov 06 11:21	13° ♂ ♂54'31	14°52'25
retrograde	1735 Jan 28 06:28	25° ♂ 45'02		max. Earth dist.		1742 Nov 05 18:22	13° ♂ ♂52'48	30.61310 AU
opposition	1735 Apr 14 20:22	24° ♂ 21'52	17°35'38			1742 Dec 04 05:24	15° ♂ ♂♂	
min. Earth dist.	1735 Apr 16 12:07	24° ♂ 19'04	28.93262 AU	retrograde		1743 Feb 18 04:35	16° ♂ ♂34'52	
direct	1735 Jul 03 13:41	22° ♂ 55'40		opposition		1743 May 06 05:36	15° ♂ ♂11'40	15°43'23
max. Earth dist.	1735 Oct 17 21:08	25° ♂ 36'38	30.80825 AU	min. Earth dist.		1743 May 06 20:01	15° ♂ ♂10'39	28.69174 AU
conjunction	1735 Oct 19 13:08	25° ♂ 40'40	16°25'10			1743 May 13 04:39	15° ♂ ♂♂♂	
minimum elong	1735 Oct 19 13:13	25° ♂ 40'41	16°25'09	direct		1743 Jul 25 01:40	13° ♂ ♂46'03	
retrograde	1736 Jan 31 03:49	28° ♂ 21'05				1743 Sep 30 21:18	15° ♂ ♂♂	
opposition	1736 Apr 16 17:50	26° ♂ 57'47	17°28'48	conjunction		1743 Nov 09 06:47	16° ♂ ♂29'59	14°31'56
min. Earth dist.	1736 Apr 18 05:57	26° ♂ 55'14	28.86158 AU	minimum elong		1743 Nov 09 07:07	16° ♂ ♂30'01	14°31'55
direct	1736 Jul 05 12:27	25° ♂ 31'30		max. Earth dist.		1743 Nov 08 18:24	16° ♂ ♂28'44	30.63283 AU
max. Earth dist.	1736 Oct 19 20:55	28° ♂ 13'02	30.74384 AU	retrograde		1744 Feb 20 22:57	19° ♂ ♂09'59	
conjunction	1736 Oct 21 09:42	28° ♂ 16'45	16°17'37	opposition		1744 May 08 03:35	17° ♂ ♂46'55	15°20'37
minimum elong	1736 Oct 21 09:49	28° ♂ 16'45	16°17'38	min. Earth dist.		1744 May 08 15:34	17° ♂ ♂46'05	28.71342 AU
retrograde	1736 Dec 06 11:35	0° ♂ ♂♂		direct		1744 Jul 26 23:55	16° ♂ ♂21'31	
	1737 Feb 01 23:49	0° ♂ ♂57'26		conjunction		1744 Nov 11 02:04	19° ♂ ♂04'51	14°09'50
				minimum elong		1744 Nov 11 02:25	19° ♂ ♂04'53	14°09'51

max. Earth dist.	1744 Nov 10 15:43	19° ℳ 03'48	30.66322 AU	max. Earth dist.	1752 Dec 01 09:09	9° ♂ 01'16	31.27883 AU
retrograde	1745 Feb 22 19:24	21° ℳ 44'22		retrograde	1753 Mar 14 05:21	11° ♂ 32'32	
opposition	1745 May 11 01:24	20° ℳ 21'26	14°56'09	opposition	1753 May 31 15:18	10° ♂ 11'03	10°50'08
min. Earth dist.	1745 May 11 09:35	20° ℳ 20'52	28.74551 AU	min. Earth dist.	1753 May 30 22:53	10° ♂ 12'10	29.37290 AU
direct	1745 Jul 29 21:21	18° ℳ 56'16		direct	1753 Aug 19 19:44	8° ♂ 48'07	
conjunction	1745 Nov 13 20:59	21° ℳ 38'52	13°46'13	conjunction	1753 Dec 03 06:52	11° ♂ 22'06	9°52'14
minimum elong	1745 Nov 13 21:22	21° ℳ 38'54	13°46'12	minimum elong	1753 Dec 03 07:14	11° ♂ 22'08	9°52'14
max. Earth dist.	1745 Nov 13 14:39	21° ℳ 38'14	30.70389 AU	max. Earth dist.	1753 Dec 04 01:10	11° ♂ 23'51	31.40410 AU
retrograde	1746 Feb 25 11:40	24° ℳ 17'49		retrograde	1754 Mar 16 19:46	13° ♂ 53'54	
opposition	1746 May 13 23:04	22° ℳ 55'02	14°30'04	opposition	1754 Jun 03 08:25	12° ♂ 32'42	10°14'35
min. Earth dist.	1746 May 14 05:11	22° ℳ 54'36	28.78758 AU	min. Earth dist.	1754 Jun 02 12:19	12° ♂ 34'03	29.49966 AU
direct	1746 Aug 01 19:31	21° ℳ 30'06		direct	1754 Aug 22 12:43	11° ♂ 10'10	
conjunction	1746 Nov 16 15:25	24° ℳ 11'52	13°21'09	conjunction	1754 Dec 05 20:16	13° ♂ 42'53	9°18'44
minimum elong	1746 Nov 16 15:48	24° ℳ 11'54	13°21'09	minimum elong	1754 Dec 05 20:38	13° ♂ 42'55	9°18'45
max. Earth dist.	1746 Nov 16 11:18	24° ℳ 11'27	30.75474 AU	max. Earth dist.	1754 Dec 06 18:36	13° ♂ 45'02	31.53928 AU
retrograde	1747 Feb 28 06:18	26° ℳ 50'08		retrograde	1755 Mar 19 07:26	16° ♂ 13'37	
opposition	1747 May 16 20:00	25° ℳ 27'30	14°02'28	min. Earth dist.	1755 Jun 05 02:36	14° ♂ 54'14	29.63598 AU
min. Earth dist.	1747 May 16 22:12	25° ℳ 27'21	28.83964 AU	opposition	1755 Jun 06 00:46	14° ♂ 52'45	9°38'20
direct	1747 Aug 04 17:13	24° ℳ 02'47		direct	1755 Aug 25 06:51	13° ♂ 30'38	
conjunction	1747 Nov 19 09:23	26° ℳ 43'38	12°54'42	conjunction	1755 Dec 08 08:49	16° ♂ 02'04	8°44'39
minimum elong	1747 Nov 19 09:46	26° ℳ 43'40	12°54'42	minimum elong	1755 Dec 08 09:09	16° ♂ 02'06	8°44'39
max. Earth dist.	1747 Nov 19 08:52	26° ℳ 43'35	30.81553 AU	max. Earth dist.	1755 Dec 09 08:47	16° ♂ 04'20	31.68354 AU
retrograde	1748 Mar 01 22:34	29° ℳ 21'09		retrograde	1756 Mar 20 21:02	18° ♂ 31'43	
opposition	1748 May 18 16:42	27° ℳ 58'39	13°33'26	opposition	1756 Jun 07 16:27	17° ♂ 11'10	9°01'30
min. Earth dist.	1748 May 18 16:57	27° ℳ 58'38	28.90166 AU	min. Earth dist.	1756 Jun 06 14:36	17° ♂ 12'53	29.78116 AU
direct	1748 Aug 06 12:59	26° ℳ 34'11		direct	1756 Aug 26 23:00	15° ♂ 49'27	
conjunction	1748 Nov 21 02:37	29° ℳ 14'01	12°26'59	conjunction	1756 Dec 09 20:46	18° ♂ 19'35	8°10'03
minimum elong	1748 Nov 21 03:01	29° ℳ 14'03	12°27'00	minimum elong	1756 Dec 09 21:06	18° ♂ 19'37	8°10'04
max. Earth dist.	1748 Nov 21 04:58	29° ℳ 14'15	30.88654 AU	max. Earth dist.	1756 Dec 11 00:17	18° ♂ 22'11	31.83599 AU
	1748 Dec 10 16:56	0° ♂		retrograde	1757 Mar 23 06:54	20° ♂ 48'08	
retrograde	1749 Mar 04 15:31	1° ♂ 50'41		min. Earth dist.	1757 Jun 09 04:19	19° ♂ 29'43	29.93439 AU
opposition	1749 May 21 12:44	0° ♂ 28'20	13°03'04	opposition	1757 Jun 10 07:39	19° ♂ 27'55	8°24'13
min. Earth dist.	1749 May 21 08:55	0° ♂ 28'36	28.97391 AU	direct	1757 Aug 29 14:34	18° ♂ 06'38	
	1749 Jun 08 01:41	30° ♂ ℳ		conjunction	1757 Dec 12 08:01	20° ♂ 35'25	7°35'04
direct	1749 Aug 09 12:03	29° ℳ 04'07		minimum elong	1757 Dec 12 08:19	20° ♂ 35'27	7°35'04
	1749 Oct 07 10:37	0° ♂		max. Earth dist.	1757 Dec 13 13:14	20° ♂ 38'10	31.99610 AU
conjunction	1749 Nov 23 19:15	1° ♂ 42'52	11°58'05	retrograde	1758 Mar 25 17:40	23° ♂ 02'51	
minimum elong	1749 Nov 23 19:38	1° ♂ 42'54	11°58'04	opposition	1758 Jun 12 21:58	21° ♂ 42'57	7°46'34
max. Earth dist.	1749 Nov 24 00:54	1° ♂ 43'25	30.96798 AU	min. Earth dist.	1758 Jun 11 15:09	21° ♂ 44'59	30.09507 AU
retrograde	1750 Mar 07 07:45	4° ♂ 18'38		direct	1758 Sep 01 05:42	20° ♂ 22'04	
opposition	1750 May 24 08:23	2° ♂ 56'27	12°31'27	conjunction	1758 Dec 14 18:33	22° ♂ 49'31	6°59'47
min. Earth dist.	1750 May 24 01:58	2° ♂ 56'54	29.05703 AU	minimum elong	1758 Dec 14 18:50	22° ♂ 49'33	6°59'47
direct	1750 Aug 12 07:37	1° ♂ 32'30		max. Earth dist.	1758 Dec 16 02:32	22° ♂ 52'30	32.16304 AU
conjunction	1750 Nov 26 11:07	4° ♂ 10'06	11°28'03	retrograde	1759 Mar 28 03:23	25° ♂ 15'48	
minimum elong	1750 Nov 26 11:31	4° ♂ 10'08	11°28'03	min. Earth dist.	1759 Jun 14 03:23	23° ♂ 58'19	30.26263 AU
max. Earth dist.	1750 Nov 26 20:24	4° ♂ 11'01	31.06050 AU	opposition	1759 Jun 15 11:42	23° ♂ 56'13	7°08'39
retrograde	1751 Mar 09 23:02	6° ♂ 44'55		direct	1759 Sep 03 18:06	22° ♂ 35'44	
opposition	1751 May 27 03:17	5° ♂ 22'57	11°58'42	conjunction	1759 Dec 17 04:27	25° ♂ 01'49	6°24'16
min. Earth dist.	1751 May 26 17:02	5° ♂ 23'38	29.15118 AU	minimum elong	1759 Dec 17 04:42	25° ♂ 01'50	6°24'15
direct	1751 Aug 15 04:34	3° ♂ 59'18		max. Earth dist.	1759 Dec 18 14:27	25° ♂ 04'58	32.33651 AU
conjunction	1751 Nov 29 02:23	6° ♂ 35'43	10°57'00	retrograde	1760 Mar 29 12:38	27° ♂ 26'55	
minimum elong	1751 Nov 29 02:46	6° ♂ 35'45	10°56'59	min. Earth dist.	1760 Jun 15 13:14	26° ♂ 09'55	30.43660 AU
max. Earth dist.	1751 Nov 29 14:21	6° ♂ 36'53	31.16409 AU	opposition	1760 Jun 17 00:25	26° ♂ 07'39	6°30'34
retrograde	1752 Mar 11 15:05	9° ♂ 09'33		direct	1760 Sep 05 08:45	24° ♂ 47'32	
opposition	1752 May 28 21:32	7° ♂ 47'48	11°24'53	conjunction	1760 Dec 18 13:29	27° ♂ 12'15	5°48'37
min. Earth dist.	1752 May 28 08:10	7° ♂ 48'42	29.25662 AU	minimum elong	1760 Dec 18 13:44	27° ♂ 12'16	5°48'37
direct	1752 Aug 16 23:22	6° ♂ 24'30		max. Earth dist.	1760 Dec 20 01:24	27° ♂ 15'32	32.51614 AU
conjunction	1752 Nov 30 17:07	8° ♂ 59'42	10°25'02	retrograde	1761 Mar 31 22:41	29° ♂ 36'10	
minimum elong	1752 Nov 30 17:30	8° ♂ 59'45	10°25'02	min. Earth dist.	1761 Jun 17 23:23	28° ♂ 19'34	30.61722 AU

opposition	1761 Jun 19 12:38	28° $\overline{\text{A}}$ 17'10	5°52'24	opposition	1769 Jul 06 10:11	14° $\overline{\text{B}}$ 28'05	0°52'09
direct	1761 Sep 07 21:08	26° $\overline{\text{A}}$ 57'26		direct	1769 Sep 25 02:06	13° $\overline{\text{B}}$ 11'39	
conjunction	1761 Dec 20 21:43	29° $\overline{\text{A}}$ 20'45	5°12'53	conjunction	1770 Jan 05 14:07	15° $\overline{\text{B}}$ 24'27	0°32'11
minimum elong	1761 Dec 20 21:56	29° $\overline{\text{A}}$ 20'46	5°12'53	minimum elong	1770 Jan 05 14:08	15° $\overline{\text{B}}$ 24'27	0°32'10
max. Earth dist.	1761 Dec 22 12:35	29° $\overline{\text{A}}$ 24'17	32.70228 AU	max. Earth dist.	1770 Jan 07 20:35	15° $\overline{\text{B}}$ 29'06	34.42286 AU
	1762 Jan 08 02:40	0° $\overline{\text{B}}$		retrograde	1770 Apr 18 20:57	17° $\overline{\text{B}}$ 38'04	
retrograde	1762 Apr 03 06:36	1° $\overline{\text{B}}$ 43'28		min. Earth dist.	1770 Jul 06 07:28	16° $\overline{\text{B}}$ 25'31	32.53947 AU
min. Earth dist.	1762 Jun 20 08:33	0° $\overline{\text{B}}$ 27'17	30.80452 AU	opposition	1770 Jul 08 15:53	16° $\overline{\text{B}}$ 22'04	0°16'10
opposition	1762 Jun 21 23:59	0° $\overline{\text{B}}$ 24'46	5°14'12	direct	1770 Sep 27 06:48	15° $\overline{\text{B}}$ 06'03	
	1762 Jul 08 08:33	30° $\overline{\text{R}}$ $\overline{\text{A}}$		desc. node	1770 Dec 22 10:48	16° $\overline{\text{B}}$ 44'58	
direct	1762 Sep 10 10:48	29° $\overline{\text{A}}$ 05'24					
	1762 Nov 09 17:38	0° $\overline{\text{B}}$		conjunction	1771 Jan 07 16:32	17° $\overline{\text{B}}$ 17'38	0°-1'-31
conjunction	1762 Dec 23 05:09	1° $\overline{\text{B}}$ 27'20	4°37'10	minimum elong	1771 Jan 07 16:32	17° $\overline{\text{B}}$ 17'38	0°01'31
minimum elong	1762 Dec 23 05:20	1° $\overline{\text{B}}$ 27'21	4°37'10	behind sun begin	1771 Jan 07 10:11	17° $\overline{\text{B}}$ 17'07	
max. Earth dist.	1762 Dec 24 21:32	1° $\overline{\text{B}}$ 30'59	32.89506 AU	behind sun end	1771 Jan 07 22:54	17° $\overline{\text{B}}$ 18'08	
retrograde	1763 Apr 05 14:24	3° $\overline{\text{B}}$ 48'51		max. Earth dist.	1771 Jan 10 01:12	17° $\overline{\text{B}}$ 22'25	34.65907 AU
min. Earth dist.	1763 Jun 22 15:56	2° $\overline{\text{B}}$ 33'09	30.99908 AU	retrograde	1771 Apr 20 23:05	19° $\overline{\text{B}}$ 30'09	
opposition	1763 Jun 24 10:21	2° $\overline{\text{B}}$ 30'26	4°36'04	min. Earth dist.	1771 Jul 08 11:41	18° $\overline{\text{B}}$ 17'57	32.77685 AU
direct	1763 Sep 12 21:03	1° $\overline{\text{B}}$ 11'28		opposition	1771 Jul 10 20:43	18° $\overline{\text{B}}$ 14'29	0°-19'-17
				direct	1771 Sep 29 13:12	16° $\overline{\text{B}}$ 58'51	
conjunction	1763 Dec 25 12:00	3° $\overline{\text{B}}$ 32'02	4°01'30	conjunction	1772 Jan 09 18:13	19° $\overline{\text{B}}$ 09'13	0°-34'-39
minimum elong	1763 Dec 25 12:09	3° $\overline{\text{B}}$ 32'03	4°01'30	minimum elong	1772 Jan 09 18:12	19° $\overline{\text{B}}$ 09'13	0°34'40
max. Earth dist.	1763 Dec 27 07:45	3° $\overline{\text{B}}$ 35'57	33.09491 AU	max. Earth dist.	1772 Jan 12 03:01	19° $\overline{\text{B}}$ 13'59	34.89755 AU
retrograde	1764 Apr 06 19:31	5° $\overline{\text{B}}$ 52'22		retrograde	1772 Apr 22 01:38	21° $\overline{\text{B}}$ 20'39	
min. Earth dist.	1764 Jun 24 00:06	4° $\overline{\text{B}}$ 37'04	31.20083 AU	min. Earth dist.	1772 Jul 09 13:46	20° $\overline{\text{B}}$ 08'53	33.01658 AU
opposition	1764 Jun 25 20:10	4° $\overline{\text{B}}$ 34'16	3°58'04	opposition	1772 Jul 12 01:01	20° $\overline{\text{B}}$ 05'18	0°-54'-13
direct	1764 Sep 14 10:01	3° $\overline{\text{B}}$ 15'42		direct	1772 Sep 30 17:25	18° $\overline{\text{B}}$ 50'03	
conjunction	1764 Dec 26 17:53	5° $\overline{\text{B}}$ 34'56	3°25'58	conjunction	1773 Jan 10 19:16	20° $\overline{\text{B}}$ 59'12	-1°-7'-20
minimum elong	1764 Dec 26 18:01	5° $\overline{\text{B}}$ 34'56	3°25'58	minimum elong	1773 Jan 10 19:14	20° $\overline{\text{B}}$ 59'12	1°07'21
max. Earth dist.	1764 Dec 28 14:54	5° $\overline{\text{B}}$ 38'56	33.30177 AU	max. Earth dist.	1773 Jan 13 06:16	21° $\overline{\text{B}}$ 04'07	35.13799 AU
retrograde	1765 Apr 09 02:29	7° $\overline{\text{B}}$ 54'05		retrograde	1773 Apr 24 00:26	23° $\overline{\text{B}}$ 09'34	
min. Earth dist.	1765 Jun 26 05:38	6° $\overline{\text{B}}$ 39'19	31.40977 AU	min. Earth dist.	1773 Jul 11 17:21	21° $\overline{\text{B}}$ 58'06	33.25841 AU
opposition	1765 Jun 28 05:09	6° $\overline{\text{B}}$ 36'20	3°20'15	opposition	1773 Jul 14 04:48	21° $\overline{\text{B}}$ 54'31	-1°-28'-35
direct	1765 Sep 16 20:10	5° $\overline{\text{B}}$ 18'11		direct	1773 Oct 02 23:47	20° $\overline{\text{B}}$ 39'38	
conjunction	1765 Dec 28 23:16	7° $\overline{\text{B}}$ 36'05	2°50'37	conjunction	1774 Jan 12 19:42	22° $\overline{\text{B}}$ 47'35	-1°-39'-31
minimum elong	1765 Dec 28 23:22	7° $\overline{\text{B}}$ 36'05	2°50'37	minimum elong	1774 Jan 12 19:38	22° $\overline{\text{B}}$ 47'35	1°39'32
max. Earth dist.	1765 Dec 30 23:23	7° $\overline{\text{B}}$ 40'19	33.51534 AU	max. Earth dist.	1774 Jan 15 07:04	22° $\overline{\text{B}}$ 52'30	35.38051 AU
retrograde	1766 Apr 11 05:30	9° $\overline{\text{B}}$ 54'06		retrograde	1774 Apr 25 23:58	24° $\overline{\text{B}}$ 56'53	
min. Earth dist.	1766 Jun 28 12:50	8° $\overline{\text{B}}$ 39'44	31.62542 AU	min. Earth dist.	1774 Jul 13 17:59	23° $\overline{\text{B}}$ 45'49	33.50259 AU
opposition	1766 Jun 30 13:29	8° $\overline{\text{B}}$ 36'41	2°42'42	opposition	1774 Jul 16 07:37	23° $\overline{\text{B}}$ 42'07	-2°-2'-22
direct	1766 Sep 19 05:10	7° $\overline{\text{B}}$ 18'58		direct	1774 Oct 05 04:11	22° $\overline{\text{B}}$ 27'34	
conjunction	1766 Dec 31 03:54	9° $\overline{\text{B}}$ 35'34	2°15'30	conjunction	1775 Jan 14 19:28	24° $\overline{\text{B}}$ 34'22	-2°-11'-9
minimum elong	1766 Dec 31 04:00	9° $\overline{\text{B}}$ 35'34	2°15'30	minimum elong	1775 Jan 14 19:23	24° $\overline{\text{B}}$ 34'21	2°11'09
max. Earth dist.	1767 Jan 02 05:27	9° $\overline{\text{B}}$ 39'54	33.73512 AU	max. Earth dist.	1775 Jan 17 08:36	24° $\overline{\text{B}}$ 39'22	35.62529 AU
retrograde	1767 Apr 13 09:02	11° $\overline{\text{B}}$ 52'28		retrograde	1775 Apr 27 22:53	26° $\overline{\text{B}}$ 42'38	
min. Earth dist.	1767 Jun 30 17:23	10° $\overline{\text{B}}$ 38'38	31.84697 AU	min. Earth dist.	1775 Jul 15 19:45	25° $\overline{\text{B}}$ 31'52	33.74954 AU
opposition	1767 Jul 02 20:58	10° $\overline{\text{B}}$ 35'24	2°05'27	opposition	1775 Jul 18 09:59	25° $\overline{\text{B}}$ 28'09	-2°-35'-33
direct	1767 Sep 21 13:25	9° $\overline{\text{B}}$ 18'07		direct	1775 Oct 07 06:32	24° $\overline{\text{B}}$ 13'58	
conjunction	1768 Jan 02 07:54	11° $\overline{\text{B}}$ 33'26	1°40'42	conjunction	1776 Jan 16 18:41	26° $\overline{\text{B}}$ 19'36	-2°-42'-13
minimum elong	1768 Jan 02 07:57	11° $\overline{\text{B}}$ 33'27	1°40'41	minimum elong	1776 Jan 16 18:35	26° $\overline{\text{B}}$ 19'35	2°42'15
max. Earth dist.	1768 Jan 04 11:36	11° $\overline{\text{B}}$ 37'56	33.96005 AU	max. Earth dist.	1776 Jan 19 09:14	26° $\overline{\text{B}}$ 24'42	35.87288 AU
retrograde	1768 Apr 14 12:59	13° $\overline{\text{B}}$ 49'14		retrograde	1776 Apr 28 21:15	28° $\overline{\text{B}}$ 26'52	
min. Earth dist.	1768 Jul 01 23:03	12° $\overline{\text{B}}$ 35'48	32.07374 AU	min. Earth dist.	1776 Jul 16 19:31	27° $\overline{\text{B}}$ 16'29	33.99940 AU
opposition	1768 Jul 04 03:54	12° $\overline{\text{B}}$ 32'32	1°28'35	opposition	1776 Jul 19 11:33	27° $\overline{\text{B}}$ 12'41	-3°-8'-5
direct	1768 Sep 22 18:39	11° $\overline{\text{B}}$ 15'41		direct	1776 Oct 08 09:00	25° $\overline{\text{B}}$ 58'52	
conjunction	1769 Jan 03 11:24	13° $\overline{\text{B}}$ 29'44	1°06'14	conjunction	1777 Jan 17 17:17	28° $\overline{\text{B}}$ 03'24	-3°-12'-42
minimum elong	1769 Jan 03 11:26	13° $\overline{\text{B}}$ 29'44	1°06'14	minimum elong	1777 Jan 17 17:10	28° $\overline{\text{B}}$ 03'23	3°12'43
max. Earth dist.	1769 Jan 05 16:57	13° $\overline{\text{B}}$ 34'20	34.18965 AU	max. Earth dist.	1777 Jan 20 08:41	28° $\overline{\text{B}}$ 08'31	36.12335 AU
retrograde	1769 Apr 16 16:04	15° $\overline{\text{B}}$ 44'25			1777 Apr 04 16:21	0° \approx	
min. Earth dist.	1769 Jul 04 03:27	14° $\overline{\text{B}}$ 31'27	32.30478 AU	retrograde	1777 Apr 30 22:19	0° \approx 09'41	

	1777 May 27 15:13	30°R $\overline{\text{C}}$		retrograde	1785 May 13 18:32	13° \approx 09'34	
min. Earth dist.	1777 Jul 18 19:05	28° $\overline{\text{C}}$ 59'42	34.25253 AU	min. Earth dist.	1785 Aug 01 03:23	12° \approx 02'14	36.32600 AU
opposition	1777 Jul 21 12:43	28° $\overline{\text{C}}$ 55'50	-3°-39'-58	opposition	1785 Aug 04 01:57	11° \approx 58'14	-7°-30'-28
direct	1777 Oct 10 07:39	27° $\overline{\text{C}}$ 42'23		direct	1785 Oct 23 23:24	10° \approx 47'40	
conjunction	1778 Jan 19 15:25	29° $\overline{\text{C}}$ 45'51	-3°-42'-36	conjunction	1786 Feb 01 08:03	12° \approx 43'27	-7°-19'-15
minimum elong	1778 Jan 19 15:18	29° $\overline{\text{C}}$ 45'51	3°42'37	minimum elong	1786 Feb 01 07:51	12° \approx 43'26	7°19'16
max. Earth dist.	1778 Jan 22 08:57	29° $\overline{\text{C}}$ 51'06	36.37681 AU	max. Earth dist.	1786 Feb 04 05:41	12° \approx 48'43	38.43822 AU
	1778 Jan 27 00:07	0° \approx		retrograde	1786 May 15 14:13	14° \approx 41'53	
retrograde	1778 May 02 20:00	1° \approx 51'12		min. Earth dist.	1786 Aug 02 22:29	13° \approx 34'50	36.58290 AU
min. Earth dist.	1778 Jul 20 18:59	0° \approx 41'33	34.50837 AU	opposition	1786 Aug 05 22:20	13° \approx 30'48	-7°-56'-13
opposition	1778 Jul 23 13:13	0° \approx 37'40	-4°-11'-10	direct	1786 Oct 25 19:45	12° \approx 20'30	
	1778 Aug 20 15:17	30°R $\overline{\text{C}}$					
direct	1778 Oct 12 08:36	29° $\overline{\text{C}}$ 24'36		conjunction	1787 Feb 03 02:12	14° \approx 15'23	-7°-43'-30
	1778 Dec 01 20:40	0° \approx		minimum elong	1787 Feb 03 02:00	14° \approx 15'22	7°43'30
				max. Earth dist.	1787 Feb 06 01:12	14° \approx 20'43	38.69269 AU
conjunction	1779 Jan 21 13:01	1° \approx 27'03	-4°-11'-52		1787 Feb 28 10:35	15° \approx	
minimum elong	1779 Jan 21 12:53	1° \approx 27'02	4°11'52	retrograde	1787 May 17 07:29	16° \approx 12'59	
max. Earth dist.	1779 Jan 24 06:40	1° \approx 32'16	36.63268 AU	min. Earth dist.	1787 Aug 04 18:56	15° \approx 06'07	36.83914 AU
retrograde	1779 May 04 18:56	3° \approx 31'28		opposition	1787 Aug 07 18:10	15° \approx 02'07	-8°-21'-16
min. Earth dist.	1779 Jul 22 16:43	2° \approx 22'16	34.76660 AU		1787 Aug 09 08:00	15°R \approx	
opposition	1779 Jul 25 12:58	2° \approx 18'17	-4°-41'-42	direct	1787 Oct 27 16:46	13° \approx 52'06	
direct	1779 Oct 14 08:22	1° \approx 05'37			1788 Jan 09 09:14	15° \approx	
conjunction	1780 Jan 23 10:13	3° \approx 07'04	-4°-40'-31	conjunction	1788 Feb 04 19:51	15° \approx 46'06	-8°-7'-6
minimum elong	1780 Jan 23 10:04	3° \approx 07'03	4°40'33	minimum elong	1788 Feb 04 19:39	15° \approx 46'05	8°07'08
max. Earth dist.	1780 Jan 26 05:57	3° \approx 12'25	36.89040 AU	max. Earth dist.	1788 Feb 07 18:54	15° \approx 51'24	38.94683 AU
retrograde	1780 May 05 15:06	5° \approx 10'36		retrograde	1788 May 17 22:50	17° \approx 42'53	
min. Earth dist.	1780 Jul 23 16:16	4° \approx 01'42	35.02647 AU	min. Earth dist.	1788 Aug 05 12:52	16° \approx 36'19	37.09523 AU
opposition	1780 Jul 26 12:27	3° \approx 57'45	-5°-11'-33	opposition	1788 Aug 08 13:32	16° \approx 32'16	-8°-45'-37
direct	1780 Oct 15 09:42	2° \approx 45'28		direct	1788 Oct 28 14:03	15° \approx 22'31	
conjunction	1781 Jan 24 06:47	4° \approx 45'57	-5°-8'-33	conjunction	1789 Feb 05 12:55	17° \approx 15'39	-8°-30'-5
minimum elong	1781 Jan 24 06:38	4° \approx 45'56	5°08'33	minimum elong	1789 Feb 05 12:43	17° \approx 15'38	8°30'05
max. Earth dist.	1781 Jan 27 02:38	4° \approx 51'16	37.14938 AU	max. Earth dist.	1789 Feb 08 12:35	17° \approx 20'58	39.20090 AU
retrograde	1781 May 07 11:26	6° \approx 48'36		retrograde	1789 May 19 15:26	19° \approx 11'40	
min. Earth dist.	1781 Jul 25 13:23	5° \approx 40'08	35.28726 AU	min. Earth dist.	1789 Aug 07 07:47	18° \approx 05'20	37.35158 AU
opposition	1781 Jul 28 11:19	5° \approx 36'06	-5°-40'-42	opposition	1789 Aug 10 08:37	18° \approx 01'17	-9°-9'-17
direct	1781 Oct 17 09:30	4° \approx 24'11		direct	1789 Oct 30 09:33	16° \approx 51'50	
conjunction	1782 Jan 26 03:05	6° \approx 23'43	-5°-35'-57	conjunction	1790 Feb 07 05:51	18° \approx 44'08	-8°-52'-25
minimum elong	1782 Jan 26 02:55	6° \approx 23'42	5°35'58	minimum elong	1790 Feb 07 05:38	18° \approx 44'07	8°52'25
max. Earth dist.	1782 Jan 28 23:55	6° \approx 29'04	37.40871 AU	max. Earth dist.	1790 Feb 10 06:35	18° \approx 49'30	39.45525 AU
retrograde	1782 May 09 06:50	8° \approx 25'32		retrograde	1790 May 21 07:55	20° \approx 39'24	
min. Earth dist.	1782 Jul 27 11:58	7° \approx 17'21	35.54832 AU	min. Earth dist.	1790 Aug 09 01:48	19° \approx 33'20	37.60800 AU
opposition	1782 Jul 30 09:42	7° \approx 13'20	-6°-9'-10	opposition	1790 Aug 12 02:58	19° \approx 29'16	-9°-32'-16
direct	1782 Oct 19 08:03	6° \approx 01'48		direct	1790 Nov 01 04:13	18° \approx 20'06	
conjunction	1783 Jan 27 23:03	8° \approx 00'22	-6°-2'-43	conjunction	1791 Feb 08 22:14	20° \approx 11'37	-9°-14'-6
minimum elong	1783 Jan 27 22:53	8° \approx 00'22	6°02'43	minimum elong	1791 Feb 08 22:02	20° \approx 11'36	9°14'07
max. Earth dist.	1783 Jan 30 20:30	8° \approx 05'45	37.66786 AU	max. Earth dist.	1791 Feb 11 22:36	20° \approx 16'55	39.70957 AU
retrograde	1783 May 11 02:21	10° \approx 01'21		retrograde	1791 May 23 02:25	22° \approx 06'10	
min. Earth dist.	1783 Jul 29 09:10	8° \approx 53'29	35.80869 AU	min. Earth dist.	1791 Aug 10 18:48	21° \approx 00'24	37.86438 AU
opposition	1783 Aug 01 07:31	8° \approx 49'28	-6°-36'-57	opposition	1791 Aug 13 21:04	20° \approx 56'19	-9°-54'-34
direct	1783 Oct 21 06:15	7° \approx 38'16		direct	1791 Nov 02 20:23	19° \approx 47'26	
conjunction	1784 Jan 29 18:25	9° \approx 35'55	-6°-28'-51	conjunction	1792 Feb 10 14:18	21° \approx 38'11	-9°-35'-10
minimum elong	1784 Jan 29 18:14	9° \approx 35'54	6°28'53	minimum elong	1792 Feb 10 14:05	21° \approx 38'10	9°35'11
max. Earth dist.	1784 Feb 01 15:35	9° \approx 41'14	37.92590 AU	max. Earth dist.	1792 Feb 13 16:08	21° \approx 43'34	39.96356 AU
retrograde	1784 May 11 23:52	11° \approx 36'03		retrograde	1792 May 23 18:31	23° \approx 32'02	
min. Earth dist.	1784 Jul 30 05:58	10° \approx 28'29	36.06803 AU	min. Earth dist.	1792 Aug 11 13:10	22° \approx 26'30	38.12014 AU
opposition	1784 Aug 02 04:59	10° \approx 24'27	-7°-4'-3	opposition	1792 Aug 14 14:49	22° \approx 22'27	-10°-16'-11
direct	1784 Oct 22 01:13	9° \approx 13'35		direct	1792 Nov 03 14:22	21° \approx 13'54	
conjunction	1785 Jan 30 13:35	11° \approx 10'17	-6°-54'-22	conjunction	1793 Feb 11 06:04	23° \approx 03'55	-9°-55'-36
minimum elong	1785 Jan 30 13:23	11° \approx 10'16	6°54'22	minimum elong	1793 Feb 11 05:51	23° \approx 03'54	9°55'38
max. Earth dist.	1785 Feb 02 11:57	11° \approx 15'39	38.18272 AU	max. Earth dist.	1793 Feb 14 07:14	23° \approx 09'12	40.21678 AU

retrograde	1793 May 25 10:58	24° 33 57'05		minimum elong	1801 Feb 23 01:07	4° 38 00'34	12°18'17
min. Earth dist.	1793 Aug 13 05:19	23° 33 51'51	38.37487 AU	max. Earth dist.	1801 Feb 26 02:01	4° 38 05'36	42.15772 AU
opposition	1793 Aug 16 08:05	23° 33 47'46	-10°-37'-9	retrograde	1801 Jun 06 03:42	5° 38 48'42	
direct	1793 Nov 05 07:28	22° 33 39'31		min. Earth dist.	1801 Aug 25 12:32	4° 38 45'05	40.32350 AU
				opposition	1801 Aug 28 13:21	4° 38 41'13	-13°-2'-49
conjunction	1794 Feb 12 21:31	24° 33 28'50	-10°-15'-27	direct	1801 Nov 17 15:41	3° 38 34'59	
minimum elong	1794 Feb 12 21:18	24° 33 28'49	10°15'28				
max. Earth dist.	1794 Feb 15 23:23	24° 33 34'08	40.46851 AU	conjunction	1802 Feb 24 14:22	5° 38 18'56	-12°-33'-33
retrograde	1794 May 27 01:45	26° 33 21'21		minimum elong	1802 Feb 24 14:11	5° 38 18'55	12°33'33
min. Earth dist.	1794 Aug 14 23:20	25° 33 16'20	38.62786 AU	max. Earth dist.	1802 Feb 27 15:50	5° 38 23'59	42.39085 AU
opposition	1794 Aug 18 01:08	25° 33 12'19	-10°-57'-29	retrograde	1802 Jun 07 15:49	7° 38 06'29	
direct	1794 Nov 07 01:06	24° 33 04'22		min. Earth dist.	1802 Aug 27 02:31	6° 38 03'04	40.55793 AU
				opposition	1802 Aug 30 03:21	5° 38 59'12	-13°-18'-20
conjunction	1795 Feb 14 12:50	25° 33 52'58	-10°-34'-41	direct	1802 Nov 19 07:09	4° 38 53'12	
minimum elong	1795 Feb 14 12:38	25° 33 52'57	10°34'43				
max. Earth dist.	1795 Feb 17 14:36	25° 33 58'15	40.71819 AU	conjunction	1803 Feb 26 03:01	6° 38 36'33	-12°-48'-17
retrograde	1795 May 28 15:15	27° 33 44'51		minimum elong	1803 Feb 26 02:49	6° 38 36'32	12°48'18
min. Earth dist.	1795 Aug 16 15:26	26° 33 40'06	38.87832 AU	max. Earth dist.	1803 Mar 01 03:29	6° 38 41'31	42.62267 AU
opposition	1795 Aug 19 17:31	26° 33 36'05	-11°-17'-11	retrograde	1803 Jun 09 07:41	8° 38 23'33	
direct	1795 Nov 08 19:23	25° 33 28'25		min. Earth dist.	1803 Aug 28 15:35	7° 38 20'21	40.79111 AU
				opposition	1803 Aug 31 17:00	7° 38 16'30	-13°-33'-16
conjunction	1796 Feb 16 03:43	27° 33 16'20	-10°-53'-21	direct	1803 Nov 20 17:50	6° 38 10'44	
minimum elong	1796 Feb 16 03:30	27° 33 16'19	10°53'22				
max. Earth dist.	1796 Feb 19 04:41	27° 33 21'31	40.96507 AU	conjunction	1804 Feb 27 15:31	7° 38 53'31	-13°-2'-29
retrograde	1796 May 29 08:09	29° 33 07'35		minimum elong	1804 Feb 27 15:21	7° 38 53'30	13°02'29
min. Earth dist.	1796 Aug 17 08:00	28° 33 03'03	39.12595 AU	max. Earth dist.	1804 Mar 01 17:01	7° 38 58'30	42.85312 AU
opposition	1796 Aug 20 09:52	27° 33 59'04	-11°-36'-17	retrograde	1804 Jun 09 20:53	9° 38 39'58	
direct	1796 Nov 09 10:13	26° 33 51'40		min. Earth dist.	1804 Aug 29 06:11	8° 38 36'56	41.02264 AU
				opposition	1804 Sep 01 06:32	8° 38 33'09	-13°-47'-39
conjunction	1797 Feb 16 18:22	28° 33 38'54	-11°-11'-27	direct	1804 Nov 21 06:44	7° 38 27'38	
minimum elong	1797 Feb 16 18:10	28° 33 38'53	11°11'28				
max. Earth dist.	1797 Feb 19 19:59	28° 33 44'06	41.20893 AU	conjunction	1805 Feb 28 03:37	9° 38 09'51	-13°-16'-8
	1797 Apr 11 12:47	0° 38		minimum elong	1805 Feb 28 03:26	9° 38 09'50	13°16'09
retrograde	1797 May 30 23:00	0° 38 29'31		max. Earth dist.	1805 Mar 03 04:20	9° 38 14'46	43.08186 AU
	1797 Jul 21 01:48	30° 38 R 38		retrograde	1805 Jun 11 08:37	10° 38 55'46	
min. Earth dist.	1797 Aug 19 00:51	29° 38 25'08	39.37029 AU	min. Earth dist.	1805 Aug 30 18:35	9° 38 52'59	41.25212 AU
opposition	1797 Aug 22 01:46	29° 38 21'13	-11°-54'-46	opposition	1805 Sep 02 19:41	9° 38 49'11	-14°-1'-27
direct	1797 Nov 11 01:56	28° 38 14'05		direct	1805 Nov 22 19:42	8° 38 43'54	
	1798 Feb 17 23:48	0° 38					
conjunction	1798 Feb 18 08:38	0° 38 00'37	-11°-29'00	conjunction	1806 Mar 01 15:39	10° 38 25'35	-13°-29'-17
minimum elong	1798 Feb 18 08:26	0° 38 00'36	11°29'00	minimum elong	1806 Mar 01 15:30	10° 38 25'35	13°29'17
max. Earth dist.	1798 Feb 21 08:59	0° 38 05'42	41.44965 AU	max. Earth dist.	1806 Mar 04 16:24	10° 38 30'29	43.30815 AU
retrograde	1798 Jun 01 14:45	1° 38 50'35		retrograde	1806 Jun 12 19:32	12° 38 11'00	
min. Earth dist.	1798 Aug 20 15:31	0° 38 46'27	39.61172 AU	min. Earth dist.	1806 Sep 01 08:43	11° 38 08'22	41.47895 AU
opposition	1798 Aug 23 17:06	0° 38 42'31	-12°-12'-41	opposition	1806 Sep 04 08:33	11° 38 04'38	-14°-14'-44
	1798 Sep 28 10:45	30° 38 R 38		direct	1806 Nov 24 09:30	9° 38 59'35	
direct	1798 Nov 12 15:56	29° 38 35'36					
	1798 Dec 26 14:10	0° 38		conjunction	1807 Mar 03 03:36	11° 38 40'45	-13°-41'-56
				minimum elong	1807 Mar 03 03:25	11° 38 40'44	13°41'57
conjunction	1799 Feb 19 22:37	1° 38 21'28	-11°-45'-59	max. Earth dist.	1807 Mar 06 04:06	11° 38 45'37	43.53155 AU
minimum elong	1799 Feb 19 22:25	1° 38 21'28	11°46'00	retrograde	1807 Jun 14 05:32	13° 38 25'40	
max. Earth dist.	1799 Feb 22 23:44	1° 38 26'35	41.68760 AU	min. Earth dist.	1807 Sep 02 21:37	12° 38 23'13	41.70232 AU
retrograde	1799 Jun 03 03:23	3° 38 10'48		opposition	1807 Sep 05 21:09	12° 38 19'31	-14°-27'-31
min. Earth dist.	1799 Aug 22 07:51	2° 38 06'47	39.85065 AU	direct	1807 Nov 26 00:06	11° 38 14'42	
opposition	1799 Aug 25 08:14	2° 38 02'55	-12°-29'-59				
direct	1799 Nov 14 08:19	0° 38 56'14		conjunction	1808 Mar 03 15:04	12° 38 55'20	-13°-54'-6
				minimum elong	1808 Mar 03 14:56	12° 38 55'19	13°54'07
				max. Earth dist.	1808 Mar 06 14:15	13° 38 00'05	43.75119 AU
conjunction	1800 Feb 21 12:06	2° 38 41'27	-12°-2'-24	retrograde	1808 Jun 14 18:33	14° 38 39'46	
minimum elong	1800 Feb 21 11:54	2° 38 41'26	12°02'24	min. Earth dist.	1808 Sep 03 10:36	13° 38 37'29	41.92183 AU
max. Earth dist.	1800 Feb 24 12:44	2° 38 46'30	41.92348 AU	opposition	1808 Sep 06 09:41	13° 38 33'48	-14°-39'-47
retrograde	1800 Jun 04 14:55	4° 38 30'09		direct	1808 Nov 26 11:55	12° 38 29'13	
min. Earth dist.	1800 Aug 23 21:37	3° 38 26'22	40.08771 AU				
opposition	1800 Aug 26 22:54	3° 38 22'28	-12°-46'-42	conjunction	1809 Mar 05 02:40	14° 38 09'19	-14°-5'-48
direct	1800 Nov 16 00:23	2° 38 16'00		minimum elong	1809 Mar 05 02:30	14° 38 09'18	14°05'49
				max. Earth dist.	1809 Mar 08 02:11	14° 38 14'04	43.96679 AU
conjunction	1801 Feb 23 01:19	4° 38 00'35	-12°-18'-15	retrograde	1809 Jun 16 06:46	15° 38 53'15	

min. Earth dist.	1809 Sep 05 00:14	14° ✕ 51'04	42.13699 AU	conjunction	1818 Mar 15 23:08	24° ✕ 48'02	-15°-30'-43
opposition	1809 Sep 07 21:51	14° ✕ 47'29	-14°-51'-35	minimum elong	1818 Mar 15 23:03	24° ✕ 48'01	15°30'45
direct	1809 Nov 27 23:51	13° ✕ 43'04		max. Earth dist.	1818 Mar 18 17:49	24° ✕ 52'17	45.76257 AU
				retrograde	1818 Jun 27 01:53	26° ✕ 27'59	
conjunction	1810 Mar 06 13:52	15° ✕ 22'40	-14°-17'-3	min. Earth dist.	1818 Sep 16 06:02	25° ✕ 27'06	43.93285 AU
minimum elong	1810 Mar 06 13:44	15° ✕ 22'39	14°17'04	opposition	1818 Sep 18 23:19	25° ✕ 23'49	-16°-16'-29
max. Earth dist.	1810 Mar 09 11:42	15° ✕ 27'16	44.17819 AU	direct	1818 Dec 09 01:33	24° ✕ 21'07	
retrograde	1810 Jun 17 20:01	17° ✕ 06'05					
min. Earth dist.	1810 Sep 06 11:48	16° ✕ 04'04	42.34798 AU	conjunction	1819 Mar 17 08:38	25° ✕ 56'43	-15°-37'-59
opposition	1810 Sep 09 09:41	16° ✕ 00'29	-15°-2'-55	minimum elong	1819 Mar 17 08:34	25° ✕ 56'42	15°37'59
direct	1810 Nov 29 09:39	14° ✕ 56'15		max. Earth dist.	1819 Mar 20 03:28	26° ✕ 00'58	45.94801 AU
				retrograde	1819 Jun 28 10:20	27° ✕ 36'18	
conjunction	1811 Mar 08 00:49	16° ✕ 35'20	-14°-27'-51	min. Earth dist.	1819 Sep 17 16:43	26° ✕ 35'33	44.11732 AU
minimum elong	1811 Mar 08 00:40	16° ✕ 35'19	14°27'52	opposition	1819 Sep 20 08:59	26° ✕ 32'20	-16°-23'-40
max. Earth dist.	1811 Mar 10 22:35	16° ✕ 39'55	44.38554 AU	direct	1819 Dec 10 13:22	25° ✕ 29'49	
retrograde	1811 Jun 19 05:23	18° ✕ 18'15					
min. Earth dist.	1811 Sep 08 01:01	17° ✕ 16'18	42.55526 AU	conjunction	1820 Mar 17 17:54	27° ✕ 05'02	-15°-44'-51
opposition	1811 Sep 10 21:16	17° ✕ 12'49	-15°-13'-46	minimum elong	1820 Mar 17 17:49	27° ✕ 05'02	15°44'52
direct	1811 Nov 30 22:06	16° ✕ 08'45		max. Earth dist.	1820 Mar 20 10:43	27° ✕ 09'08	46.12917 AU
				retrograde	1820 Jun 28 22:50	28° ✕ 44'15	
conjunction	1812 Mar 08 11:33	17° ✕ 47'20	-14°-38'-12	min. Earth dist.	1820 Sep 18 02:39	27° ✕ 43'39	44.29734 AU
minimum elong	1812 Mar 08 11:25	17° ✕ 47'19	14°38'13	opposition	1820 Sep 20 18:38	27° ✕ 40'27	-16°-30'-28
max. Earth dist.	1812 Mar 11 09:00	17° ✕ 51'52	44.58967 AU	direct	1820 Dec 10 20:34	26° ✕ 38'07	
retrograde	1812 Jun 19 13:04	19° ✕ 29'46					
min. Earth dist.	1812 Sep 08 12:01	18° ✕ 27'59	42.75945 AU	conjunction	1821 Mar 19 03:05	28° ✕ 12'57	-15°-51'-21
opposition	1812 Sep 11 08:30	18° ✕ 24'29	-15°-24'-9	minimum elong	1821 Mar 19 03:02	28° ✕ 12'57	15°51'21
direct	1812 Dec 01 11:54	17° ✕ 20'36		max. Earth dist.	1821 Mar 21 19:46	28° ✕ 17'01	46.30556 AU
				retrograde	1821 Jun 30 08:45	29° ✕ 51'47	
conjunction	1813 Mar 09 21:49	18° ✕ 58'41	-14°-48'-5	min. Earth dist.	1821 Sep 19 14:15	28° ✕ 51'13	44.47229 AU
minimum elong	1813 Mar 09 21:41	18° ✕ 58'41	14°48'05	opposition	1821 Sep 22 04:09	28° ✕ 48'09	-16°-36'-54
max. Earth dist.	1813 Mar 12 18:23	19° ✕ 03'09	44.79099 AU	direct	1821 Dec 12 05:24	27° ✕ 45'57	
retrograde	1813 Jun 21 00:03	20° ✕ 40'40					
min. Earth dist.	1813 Sep 09 23:36	19° ✕ 39'01	42.96119 AU	conjunction	1822 Mar 20 12:11	29° ✕ 20'24	-15°-57'-29
opposition	1813 Sep 12 19:38	19° ✕ 35'33	-15°-34'-2	minimum elong	1822 Mar 20 12:07	29° ✕ 20'24	15°57'30
direct	1813 Dec 02 23:17	18° ✕ 31'51		max. Earth dist.	1822 Mar 23 03:23	29° ✕ 24'22	46.47705 AU
					1822 Apr 16 13:47	0° ∇	
conjunction	1814 Mar 11 08:13	20° ✕ 09'29	-14°-57'-30	retrograde	1822 Jul 01 16:27	0° ∇ 58'50	
minimum elong	1814 Mar 11 08:06	20° ✕ 09'28	14°57'31		1822 Sep 19 14:53	30° ∇ ✕	
max. Earth dist.	1814 Mar 14 05:23	20° ✕ 13'58	44.99003 AU	min. Earth dist.	1822 Sep 20 23:22	29° ✕ 58'23	44.64230 AU
retrograde	1814 Jun 22 09:51	21° ✕ 51'01		opposition	1822 Sep 23 13:09	29° ✕ 55'19	-16°-42'-57
min. Earth dist.	1814 Sep 11 11:06	20° ✕ 49'30	43.16052 AU	direct	1822 Dec 13 14:28	28° ✕ 53'16	
opposition	1814 Sep 14 06:14	20° ✕ 46'05	-15°-43'-27		1823 Mar 03 09:45	0° ∇	
direct	1814 Dec 04 10:51	19° ✕ 42'34					
				conjunction	1823 Mar 21 20:56	0° ∇ 27'19	-16°-3'-16
conjunction	1815 Mar 12 18:12	21° ✕ 19'45	-15°-6'-28	minimum elong	1823 Mar 21 20:53	0° ∇ 27'19	16°03'17
minimum elong	1815 Mar 12 18:05	21° ✕ 19'45	15°06'28	max. Earth dist.	1823 Mar 24 11:02	0° ∇ 31'12	46.64376 AU
max. Earth dist.	1815 Mar 15 14:01	21° ✕ 24'08	45.18688 AU	retrograde	1823 Jul 02 23:29	2° ∇ 05'21	
retrograde	1815 Jun 23 22:20	23° ✕ 00'52		min. Earth dist.	1823 Sep 22 09:58	1° ∇ 04'57	44.80790 AU
min. Earth dist.	1815 Sep 12 21:07	21° ✕ 59'33	43.35767 AU	opposition	1823 Sep 24 22:13	1° ∇ 01'58	-16°-48'-38
opposition	1815 Sep 15 16:46	21° ✕ 56'07	-15°-52'-23	direct	1823 Dec 15 00:24	0° ∇ 00'01	
direct	1815 Dec 05 18:36	20° ✕ 52'48					
				conjunction	1824 Mar 22 05:27	1° ∇ 33'41	-16°-8'-41
conjunction	1816 Mar 13 03:55	22° ✕ 29'34	-15°-14'-59	minimum elong	1824 Mar 22 05:23	1° ∇ 33'41	16°08'42
minimum elong	1816 Mar 13 03:49	22° ✕ 29'34	15°15'01	max. Earth dist.	1824 Mar 24 19:33	1° ∇ 37'33	46.80646 AU
max. Earth dist.	1816 Mar 16 00:16	22° ✕ 33'58	45.38142 AU	retrograde	1824 Jul 03 05:23	3° ∇ 11'20	
retrograde	1816 Jun 24 08:51	24° ✕ 10'17		min. Earth dist.	1824 Sep 22 19:19	2° ∇ 11'01	44.96962 AU
min. Earth dist.	1816 Sep 13 09:00	23° ✕ 09'04	43.55236 AU	opposition	1824 Sep 25 06:58	2° ∇ 08'03	-16°-53'-56
opposition	1816 Sep 16 03:15	23° ✕ 05'44	-16°00'-52	direct	1824 Dec 15 11:59	1° ∇ 06'14	
direct	1816 Dec 06 03:52	22° ✕ 02'38					
				conjunction	1825 Mar 23 13:47	2° ∇ 39'30	-16°-13'-44
conjunction	1817 Mar 14 13:39	23° ✕ 38'59	-15°-23'-4	minimum elong	1825 Mar 23 13:45	2° ∇ 39'30	16°13'45
minimum elong	1817 Mar 14 13:33	23° ✕ 38'59	15°23'04	max. Earth dist.	1825 Mar 26 02:19	2° ∇ 43'16	46.96570 AU
max. Earth dist.	1817 Mar 17 09:16	23° ✕ 43'19	45.57355 AU	retrograde	1825 Jul 04 14:54	4° ∇ 16'48	
retrograde	1817 Jun 25 17:04	25° ✕ 19'18		min. Earth dist.	1825 Sep 24 04:06	3° ∇ 16'33	45.12826 AU
min. Earth dist.	1817 Sep 14 18:43	24° ✕ 18'18	43.74425 AU	opposition	1825 Sep 26 15:28	3° ∇ 13'37	-16°-58'-50
opposition	1817 Sep 17 13:17	24° ✕ 14'57	-16°-8'-53	direct	1825 Dec 16 20:26	2° ∇ 11'54	
direct	1817 Dec 07 14:04	23° ✕ 12'03					

conjunction	1826 Mar 24 22:05	3°Y44'49	-16°-18'-24	retrograde	1834 Jul 14 10:58	13°Y49'23	
minimum elong	1826 Mar 24 22:02	3°Y44'49	16°18'25	min. Earth dist.	1834 Oct 04 09:42	12°Y49'57	46.41026 AU
max. Earth dist.	1826 Mar 27 11:00	3°Y48'35	47.12201 AU	opposition	1834 Oct 06 13:02	12°Y47'27	-17°-26'-29
retrograde	1826 Jul 06 00:25	5°Y21'45		direct	1834 Dec 26 17:41	11°Y46'58	
min. Earth dist.	1826 Sep 25 13:54	4°Y21'33	45.28397 AU				
opposition	1826 Sep 27 23:52	4°Y18'42	-17°-3'-21	conjunction	1835 Apr 03 18:36	13°Y17'16	-16°-44'-37
direct	1826 Dec 18 04:09	3°Y17'07		minimum elong	1835 Apr 03 18:37	13°Y17'16	16°44'38
				max. Earth dist.	1835 Apr 05 22:41	13°Y20'24	48.38224 AU
conjunction	1827 Mar 26 06:06	4°Y49'41	-16°-22'-42	retrograde	1835 Jul 15 17:57	14°Y51'33	
minimum elong	1827 Mar 26 06:04	4°Y49'41	16°22'43	min. Earth dist.	1835 Oct 05 17:47	13°Y52'10	46.53093 AU
max. Earth dist.	1827 Mar 28 17:53	4°Y53'22	47.27569 AU	opposition	1835 Oct 07 20:04	13°Y49'43	-17°-27'-56
retrograde	1827 Jul 07 09:37	6°Y26'15		direct	1835 Dec 28 01:47	12°Y49'20	
min. Earth dist.	1827 Sep 26 21:29	5°Y26'12	45.43702 AU				
opposition	1827 Sep 29 07:56	5°Y23'20	-17°-7'-29	conjunction	1836 Apr 04 01:42	14°Y19'22	-16°-45'-58
direct	1827 Dec 19 10:04	4°Y21'53		minimum elong	1836 Apr 04 01:45	14°Y19'22	16°45'59
				max. Earth dist.	1836 Apr 06 05:57	14°Y22'30	48.50055 AU
conjunction	1828 Mar 26 13:57	5°Y54'08	-16°-26'-37	retrograde	1836 Jul 16 01:37	15°Y53'22	
minimum elong	1828 Mar 26 13:55	5°Y54'08	16°26'37	min. Earth dist.	1836 Oct 06 02:07	14°Y54'00	46.64752 AU
max. Earth dist.	1828 Mar 29 01:09	5°Y57'46	47.42674 AU	opposition	1836 Oct 08 02:56	14°Y51'38	-17°-29'-4
retrograde	1828 Jul 07 16:12	7°Y30'23		direct	1836 Dec 28 09:27	13°Y51'20	
min. Earth dist.	1828 Sep 27 07:02	6°Y30'24	45.58748 AU				
opposition	1828 Sep 29 16:04	6°Y27'36	-17°-11'-14	conjunction	1837 Apr 05 08:32	15°Y21'06	-16°-47'00
direct	1828 Dec 19 18:48	5°Y26'18		minimum elong	1837 Apr 05 08:33	15°Y21'06	16°47'01
				max. Earth dist.	1837 Apr 07 11:12	15°Y24'07	48.61526 AU
conjunction	1829 Mar 27 21:46	6°Y58'14	-16°-30'-10	retrograde	1837 Jul 17 11:29	16°Y54'49	
minimum elong	1829 Mar 27 21:45	6°Y58'14	16°30'12	min. Earth dist.	1837 Oct 07 08:36	15°Y55'33	46.76070 AU
max. Earth dist.	1829 Mar 30 09:05	7°Y01'52	47.57520 AU	opposition	1837 Oct 09 09:35	15°Y53'11	-17°-29'-52
retrograde	1829 Jul 08 21:01	8°Y34'11		direct	1837 Dec 29 13:10	14°Y52'59	
min. Earth dist.	1829 Sep 28 15:14	7°Y34'20	45.73491 AU				
opposition	1829 Sep 30 23:52	7°Y31'33	-17°-14'-37	conjunction	1838 Apr 06 15:19	16°Y22'29	-16°-47'-44
direct	1829 Dec 21 05:15	6°Y30'24		minimum elong	1838 Apr 06 15:23	16°Y22'30	16°47'44
				max. Earth dist.	1838 Apr 08 17:25	16°Y25'28	48.72666 AU
conjunction	1830 Mar 29 05:25	8°Y02'03	-16°-33'-22	retrograde	1838 Jul 18 17:30	17°Y55'57	
minimum elong	1830 Mar 29 05:25	8°Y02'03	16°33'22	min. Earth dist.	1838 Oct 08 16:54	16°Y56'41	46.87082 AU
max. Earth dist.	1830 Mar 31 14:55	8°Y05'33	47.72049 AU	opposition	1838 Oct 10 16:05	16°Y54'25	-17°-30'-21
retrograde	1830 Jul 10 06:12	9°Y37'43		direct	1838 Dec 30 18:59	15°Y54'18	
min. Earth dist.	1830 Sep 29 23:25	8°Y37'59	45.87904 AU				
opposition	1830 Oct 02 07:27	8°Y35'14	-17°-17'-38	conjunction	1839 Apr 07 22:03	17°Y23'34	-16°-48'-8
direct	1830 Dec 22 12:25	7°Y34'14		minimum elong	1839 Apr 07 22:05	17°Y23'34	16°48'08
				max. Earth dist.	1839 Apr 09 23:56	17°Y26'32	48.83533 AU
conjunction	1831 Mar 30 13:07	9°Y05'37	-16°-36'-14	retrograde	1839 Jul 19 20:20	18°Y56'47	
minimum elong	1831 Mar 30 13:07	9°Y05'37	16°36'16	min. Earth dist.	1839 Oct 09 23:15	17°Y57'37	46.97808 AU
max. Earth dist.	1831 Apr 01 22:44	9°Y09'07	47.86213 AU	opposition	1839 Oct 11 22:28	17°Y55'21	-17°-30'-31
retrograde	1831 Jul 11 14:36	10°Y41'01		direct	1840 Jan 01 03:44	16°Y55'20	
min. Earth dist.	1831 Oct 01 08:52	9°Y41'20	46.01908 AU				
opposition	1831 Oct 03 15:04	9°Y38'41	-17°-20'-19	conjunction	1840 Apr 08 04:22	18°Y24'23	-16°-48'-13
direct	1831 Dec 23 20:09	8°Y37'51		minimum elong	1840 Apr 08 04:26	18°Y24'23	16°48'14
				max. Earth dist.	1840 Apr 10 04:40	18°Y27'15	48.94122 AU
conjunction	1832 Mar 30 20:33	10°Y08'57	-16°-38'-47	retrograde	1840 Jul 20 02:12	19°Y57'22	
minimum elong	1832 Mar 30 20:34	10°Y08'57	16°38'47	min. Earth dist.	1840 Oct 10 06:26	18°Y58'16	47.08265 AU
max. Earth dist.	1832 Apr 02 04:32	10°Y12'20	47.99957 AU	opposition	1840 Oct 12 04:54	18°Y56'02	-17°-30'-21
retrograde	1832 Jul 11 23:20	11°Y44'04		direct	1841 Jan 01 11:20	17°Y56'08	
min. Earth dist.	1832 Oct 01 16:26	10°Y44'32	46.15456 AU				
opposition	1832 Oct 03 22:31	10°Y41'54	-17°-22'-40	conjunction	1841 Apr 09 10:57	19°Y24'58	-16°-48'00
direct	1832 Dec 24 01:21	9°Y41'11		minimum elong	1841 Apr 09 11:00	19°Y24'58	16°48'00
				max. Earth dist.	1841 Apr 11 11:32	19°Y27'50	49.04432 AU
conjunction	1833 Apr 01 04:03	11°Y12'02	-16°-41'-1	retrograde	1841 Jul 21 08:16	20°Y57'44	
minimum elong	1833 Apr 01 04:03	11°Y12'02	16°41'02	min. Earth dist.	1841 Oct 11 13:56	19°Y58'41	47.18409 AU
max. Earth dist.	1833 Apr 03 10:53	11°Y15'21	48.13209 AU	opposition	1841 Oct 13 11:03	19°Y56'31	-17°-29'-52
retrograde	1833 Jul 13 06:32	12°Y46'52		direct	1842 Jan 02 19:01	18°Y56'43	
min. Earth dist.	1833 Oct 03 01:56	11°Y47'21	46.28500 AU				
opposition	1833 Oct 05 05:54	11°Y44'50	-17°-24'-43	conjunction	1842 Apr 10 17:22	20°Y25'21	-16°-47'-28
direct	1833 Dec 25 08:06	10°Y44'15		minimum elong	1842 Apr 10 17:26	20°Y25'21	16°47'30
				max. Earth dist.	1842 Apr 12 16:22	20°Y28'07	49.14429 AU
conjunction	1834 Apr 02 11:33	12°Y14'50	-16°-42'-58	retrograde	1842 Jul 22 17:09	21°Y57'54	
minimum elong	1834 Apr 02 11:35	12°Y14'50	16°42'59	min. Earth dist.	1842 Oct 12 20:08	20°Y58'58	47.28212 AU
max. Earth dist.	1834 Apr 04 17:40	12°Y18'05	48.25965 AU	opposition	1842 Oct 14 17:08	20°Y56'49	-17°-29'-4

direct	1843 Jan 03 23:02	19°♈57'08		minimum elong	1851 Apr 20 00:28	29°♈19'18	16°30'53
				max. Earth dist.	1851 Apr 21 13:56	29°♈21'28	49.83982 AU
conjunction	1843 Apr 11 23:38	21°♈25'35 -16°-46'-39			1851 May 20 10:54	0°♈	
minimum elong	1843 Apr 11 23:43	21°♈25'35 16°46'40		retrograde	1851 Jul 31 18:38	0°♈50'03	
max. Earth dist.	1843 Apr 13 21:49	21°♈28'17 49.24041 AU			1851 Oct 14 16:41	30°♈	
retrograde	1843 Jul 24 01:18	22°♈57'55		min. Earth dist.	1851 Oct 22 09:43	29°♈51'18	47.95502 AU
min. Earth dist.	1843 Oct 14 04:16	21°♈59'00 47.37602 AU		opposition	1851 Oct 23 19:57	29°♈49'41	-17°-9'-57
opposition	1843 Oct 15 23:15	21°♈56'57 -17°-28'00		direct	1852 Jan 13 05:54	28°♈50'36	
direct	1844 Jan 05 02:55	20°♈57'23			1852 Apr 07 12:59	0°♈	
conjunction	1844 Apr 12 06:04	22°♈25'38 -16°-45'-34		conjunction	1852 Apr 20 05:59	0°♈17'28	-16°-27'-41
minimum elong	1844 Apr 12 06:09	22°♈25'39 16°45'36		minimum elong	1852 Apr 20 06:06	0°♈17'28	16°27'42
max. Earth dist.	1844 Apr 14 03:28	22°♈28'18 49.33226 AU		max. Earth dist.	1852 Apr 21 17:57	0°♈19'32	49.89742 AU
retrograde	1844 Jul 24 05:46	23°♈57'47		retrograde	1852 Aug 01 02:23	1°♈48'06	
min. Earth dist.	1844 Oct 14 10:43	22°♈58'56 47.46515 AU		min. Earth dist.	1852 Oct 22 14:52	0°♈49'25	48.01056 AU
opposition	1844 Oct 16 05:08	22°♈56'55 -17°-26'-39		opposition	1852 Oct 24 01:05	0°♈47'48	-17°-6'-28
direct	1845 Jan 05 09:09	21°♈57'26			1852 Dec 12 00:46	30°♈	
conjunction	1845 Apr 13 12:20	23°♈25'30 -16°-44'-14		direct	1853 Jan 13 09:37	29°♈48'48	
minimum elong	1845 Apr 13 12:25	23°♈25'31 16°44'14			1853 Feb 14 08:13	0°♈	
max. Earth dist.	1845 Apr 15 07:30	23°♈28'02 49.41903 AU		conjunction	1853 Apr 21 11:36	1°♈15'33	-16°-24'-15
retrograde	1845 Jul 25 11:09	24°♈57'27		minimum elong	1853 Apr 21 11:44	1°♈15'33	16°24'16
min. Earth dist.	1845 Oct 15 18:15	23°♈58'37 47.54906 AU		max. Earth dist.	1853 Apr 22 22:56	1°♈17'35	49.95192 AU
opposition	1845 Oct 17 11:06	23°♈56'40 -17°-25'-3		retrograde	1853 Aug 02 10:00	2°♈46'02	
direct	1846 Jan 06 16:20	22°♈57'16		min. Earth dist.	1853 Oct 23 21:56	1°♈47'22	48.06285 AU
conjunction	1846 Apr 14 18:45	24°♈25'09 -16°-42'-39		opposition	1853 Oct 25 06:17	1°♈45'50	-17°-2'-42
minimum elong	1846 Apr 14 18:49	24°♈25'09 16°42'39		direct	1854 Jan 14 12:31	0°♈46'55	
max. Earth dist.	1846 Apr 16 13:30	24°♈27'39 49.50044 AU		conjunction	1854 Apr 22 17:18	2°♈13'34	-16°-20'-32
retrograde	1846 Jul 26 15:31	25°♈56'53		minimum elong	1854 Apr 22 17:26	2°♈13'35	16°20'32
min. Earth dist.	1846 Oct 17 01:37	24°♈58'03 47.62744 AU		max. Earth dist.	1854 Apr 24 04:00	2°♈15'34	50.00319 AU
opposition	1846 Oct 18 16:46	24°♈56'11 -17°-23'-12		retrograde	1854 Aug 03 14:37	3°♈43'56	
direct	1847 Jan 08 00:57	23°♈56'50		min. Earth dist.	1854 Oct 25 03:00	2°♈45'21	48.11153 AU
conjunction	1847 Apr 16 00:51	25°♈24'31 -16°-40'-48		opposition	1854 Oct 26 11:09	2°♈43'50	-16°-58'-40
minimum elong	1847 Apr 16 00:58	25°♈24'31 16°40'49		direct	1855 Jan 15 16:27	1°♈44'59	
max. Earth dist.	1847 Apr 17 17:30	25°♈26'53 49.57669 AU		conjunction	1855 Apr 23 22:49	3°♈11'33	-16°-16'-34
retrograde	1847 Jul 27 23:47	26°♈56'02		minimum elong	1855 Apr 23 22:57	3°♈11'34	16°16'36
min. Earth dist.	1847 Oct 18 07:35	25°♈57'15 47.70088 AU		max. Earth dist.	1855 Apr 25 07:35	3°♈13'26	50.05061 AU
opposition	1847 Oct 19 22:24	25°♈55'24 -17°-21'-6		retrograde	1855 Aug 04 19:39	4°♈41'48	
direct	1848 Jan 09 05:03	24°♈56'07		min. Earth dist.	1855 Oct 26 09:42	3°♈43'14	48.15620 AU
conjunction	1848 Apr 16 06:45	26°♈23'36 -16°-38'-43		opposition	1855 Oct 27 16:13	3°♈41'48	-16°-54'-22
minimum elong	1848 Apr 16 06:50	26°♈23'36 16°38'44		direct	1856 Jan 16 22:10	2°♈43'02	
max. Earth dist.	1848 Apr 17 22:34	26°♈25'55 49.64814 AU		conjunction	1856 Apr 24 04:24	4°♈09'30	-16°-12'-22
retrograde	1848 Jul 28 06:35	27°♈54'55		minimum elong	1856 Apr 24 04:33	4°♈09'30	16°12'22
min. Earth dist.	1848 Oct 18 15:23	26°♈56'05 47.76984 AU		max. Earth dist.	1856 Apr 25 12:58	4°♈11'22	50.09363 AU
opposition	1848 Oct 20 04:03	26°♈54'20 -17°-18'-44		retrograde	1856 Aug 04 22:26	5°♈39'39	
direct	1849 Jan 09 09:23	25°♈55'06		opposition	1856 Oct 27 21:13	4°♈39'43	-16°-49'-51
conjunction	1849 Apr 17 12:48	27°♈22'24 -16°-36'-22		min. Earth dist.	1856 Oct 26 16:08	4°♈41'05	48.19596 AU
minimum elong	1849 Apr 17 12:55	27°♈22'24 16°36'23		direct	1857 Jan 17 06:43	3°♈41'01	
max. Earth dist.	1849 Apr 19 04:04	27°♈24'41 49.71555 AU		conjunction	1857 Apr 25 10:04	5°♈07'24	-16°-7'-55
retrograde	1849 Jul 29 09:51	28°♈53'30		minimum elong	1857 Apr 25 10:12	5°♈07'24	16°07'57
min. Earth dist.	1849 Oct 19 20:48	27°♈54'43 47.83489 AU		max. Earth dist.	1857 Apr 26 16:17	5°♈09'08	50.13161 AU
opposition	1849 Oct 21 09:18	27°♈53'00 -17°-16'-5		retrograde	1857 Aug 06 06:21	6°♈37'26	
direct	1850 Jan 10 16:02	26°♈53'48		min. Earth dist.	1857 Oct 27 21:41	5°♈38'54	48.23048 AU
conjunction	1850 Apr 18 18:36	28°♈20'57 -16°-33'-45		opposition	1857 Oct 29 02:01	5°♈37'34	-16°-45'-5
minimum elong	1850 Apr 18 18:42	28°♈20'57 16°33'46		direct	1858 Jan 18 10:40	4°♈38'54	
max. Earth dist.	1850 Apr 20 07:56	28°♈23'07 49.77929 AU		conjunction	1858 Apr 26 15:44	6°♈05'11	-16°-3'-16
retrograde	1850 Jul 30 14:20	29°♈51'52		minimum elong	1858 Apr 26 15:53	6°♈05'12	16°03'17
min. Earth dist.	1850 Oct 21 03:22	28°♈53'06 47.89658 AU		max. Earth dist.	1858 Apr 27 20:45	6°♈06'50	50.16409 AU
opposition	1850 Oct 22 14:41	28°♈51'25 -17°-13'-10		retrograde	1858 Aug 07 14:20	7°♈35'05	
direct	1851 Jan 11 22:30	27°♈52'17		min. Earth dist.	1858 Oct 29 05:01	6°♈36'29	48.25948 AU
conjunction	1851 Apr 20 00:20	29°♈19'17 -16°-30'-51		opposition	1858 Oct 30 06:59	6°♈35'16	-16°-40'-6
				direct	1859 Jan 19 13:36	5°♈36'39	

conjunction	1859 Apr 27 21:10	7°8'02.48	-15°-58'-24	minimum elong	1867 May 05 15:14	14°8'37.23	15°10'40
minimum elong	1859 Apr 27 21:18	7°8'02.49	15°58'25	max. Earth dist.	1867 May 06 10:23	14°8'38.29	50.27404 AU
max. Earth dist.	1859 Apr 29 01:11	7°8'04.24	50.19135 AU		1867 May 22 10:47	15°8'	
retrograde	1859 Aug 08 17:54	8°8'32.34		retrograde	1867 Aug 16 06:51	16°8'06.24	
min. Earth dist.	1859 Oct 30 10:04	7°8'33.59	48.28331 AU	opposition	1867 Nov 07 23:28	15°8'06.52	-15°-44'-10
opposition	1859 Oct 31 11:42	7°8'32.47	-16°-34'-54	min. Earth dist.	1867 Nov 07 05:30	15°8'07.43	48.34431 AU
direct	1860 Jan 20 18:41	6°8'34.09			1867 Nov 14 02:19	15°8'	
				direct	1868 Jan 28 10:43	14°8'08.23	
conjunction	1860 Apr 28 02:31	8°8'00.13	-15°-53'-17		1868 Apr 10 03:01	15°8'	
minimum elong	1860 Apr 28 02:41	8°8'00.13	15°53'19				
max. Earth dist.	1860 Apr 29 04:24	8°8'01.41	50.21373 AU	conjunction	1868 May 05 20:21	15°8'33.59	-15°-3'-35
retrograde	1860 Aug 08 21:18	9°8'29.50		minimum elong	1868 May 05 20:31	15°8'34.00	15°03'36
opposition	1860 Oct 31 16:24	8°8'30.03	-16°-29'-27	max. Earth dist.	1868 May 06 14:40	15°8'35.01	50.26904 AU
min. Earth dist.	1860 Oct 30 16:23	8°8'31.11	48.30271 AU	retrograde	1868 Aug 16 14:45	17°8'02.59	
direct	1861 Jan 21 00:11	7°8'31.26		opposition	1868 Nov 08 03:53	16°8'03.30	-15°-36'-42
				min. Earth dist.	1868 Nov 07 12:15	16°8'04.14	48.33588 AU
conjunction	1861 Apr 29 07:57	8°8'57.23	-15°-47'-57	direct	1869 Jan 28 13:14	15°8'05.02	
minimum elong	1861 Apr 29 08:05	8°8'57.24	15°47'58				
max. Earth dist.	1861 Apr 30 09:48	8°8'58.52	50.23194 AU	conjunction	1869 May 07 01:46	16°8'30.39	-14°-56'-17
retrograde	1861 Aug 09 23:31	10°8'26.53		minimum elong	1869 May 07 01:57	16°8'30.39	14°56'17
opposition	1861 Nov 01 20:58	9°8'27.07	-16°-23'-46	max. Earth dist.	1869 May 07 18:58	16°8'31.37	50.25931 AU
min. Earth dist.	1861 Oct 31 22:09	9°8'28.11	48.31806 AU	retrograde	1869 Aug 17 19:27	17°8'59.36	
direct	1862 Jan 22 08:07	8°8'28.30		opposition	1869 Nov 09 08:13	17°8'00.10	-15°-29'-1
				min. Earth dist.	1869 Nov 08 16:59	17°8'00.53	48.32229 AU
conjunction	1862 Apr 30 13:11	9°8'54.21	-15°-42'-22	direct	1870 Jan 29 17:02	16°8'01.43	
minimum elong	1862 Apr 30 13:21	9°8'54.21	15°42'23				
max. Earth dist.	1862 May 01 13:15	9°8'55.43	50.24651 AU	conjunction	1870 May 08 07:03	17°8'27.19	-14°-48'-47
retrograde	1862 Aug 11 05:17	11°8'23.44		minimum elong	1870 May 08 07:12	17°8'27.20	14°48'48
min. Earth dist.	1862 Nov 02 02:47	10°8'25.02	48.33007 AU	max. Earth dist.	1870 May 08 21:44	17°8'28.09	50.24419 AU
opposition	1862 Nov 03 01:21	10°8'23.59	-16°-17'-49	retrograde	1870 Aug 18 23:40	18°8'56.15	
direct	1863 Jan 23 12:46	9°8'25.22		opposition	1870 Nov 10 12:36	17°8'56.50	-15°-21'-7
				min. Earth dist.	1870 Nov 09 23:21	17°8'57.27	48.30335 AU
conjunction	1863 May 01 18:25	10°8'51.07	-15°-36'-32	direct	1871 Jan 30 21:47	16°8'58.23	
minimum elong	1863 May 01 18:34	10°8'51.08	15°36'32				
max. Earth dist.	1863 May 02 17:45	10°8'52.27	50.25786 AU	conjunction	1871 May 09 12:25	18°8'23.59	-14°-41'-4
retrograde	1863 Aug 12 12:04	12°8'20.24		minimum elong	1871 May 09 12:36	18°8'24.00	14°41'05
min. Earth dist.	1863 Nov 03 09:03	11°8'21.40	48.33903 AU	max. Earth dist.	1871 May 10 02:46	18°8'24.48	50.22384 AU
opposition	1863 Nov 04 05:55	11°8'20.41	-16°-11'-36	retrograde	1871 Aug 20 01:41	19°8'52.53	
direct	1864 Jan 24 16:17	10°8'22.04		opposition	1871 Nov 11 16:56	18°8'53.28	-15°-13'00
				min. Earth dist.	1871 Nov 11 04:59	18°8'54.01	48.27922 AU
conjunction	1864 May 01 23:33	11°8'47.46	-15°-30'-26	direct	1872 Feb 01 05:28	17°8'55.00	
minimum elong	1864 May 01 23:44	11°8'47.47	15°30'28				
max. Earth dist.	1864 May 02 22:31	11°8'49.04	50.26646 AU	conjunction	1872 May 09 17:31	19°8'20.36	-14°-33'-8
retrograde	1864 Aug 12 17:34	13°8'16.57		minimum elong	1872 May 09 17:41	19°8'20.36	14°33'09
opposition	1864 Nov 04 10:19	12°8'17.15	-16°-5'-8	max. Earth dist.	1872 May 10 05:44	19°8'21.17	50.19868 AU
min. Earth dist.	1864 Nov 03 13:24	12°8'18.14	48.34512 AU	retrograde	1872 Aug 20 07:23	20°8'49.27	
direct	1865 Jan 24 19:04	11°8'18.40		opposition	1872 Nov 11 21:13	19°8'50.03	-15°-4'-40
				min. Earth dist.	1872 Nov 11 09:54	19°8'50.34	48.25057 AU
conjunction	1865 May 03 04:43	12°8'44.19	-15°-24'-6	direct	1873 Feb 01 09:55	18°8'51.34	
minimum elong	1865 May 03 04:53	12°8'44.20	15°24'06				
max. Earth dist.	1865 May 04 01:51	12°8'45.31	50.27215 AU	conjunction	1873 May 10 22:48	20°8'17.09	-14°-24'-59
retrograde	1865 Aug 13 22:37	14°8'13.26		minimum elong	1873 May 10 23:00	20°8'17.09	14°25'01
opposition	1865 Nov 05 14:42	13°8'13.47	-15°-58'-23	max. Earth dist.	1873 May 11 10:01	20°8'17.47	50.16908 AU
min. Earth dist.	1865 Nov 04 19:13	13°8'14.42	48.34834 AU	retrograde	1873 Aug 21 13:56	21°8'45.59	
direct	1866 Jan 25 23:08	12°8'15.13		opposition	1873 Nov 13 01:25	20°8'46.34	-14°-56'-5
				min. Earth dist.	1873 Nov 12 16:08	20°8'47.00	48.21779 AU
conjunction	1866 May 04 10:02	13°8'40.50	-15°-17'-30	direct	1874 Feb 02 13:27	19°8'48.03	
minimum elong	1866 May 04 10:12	13°8'40.51	15°17'31				
max. Earth dist.	1866 May 05 07:11	13°8'42.02	50.27482 AU	conjunction	1874 May 12 04:04	21°8'13.39	-14°-16'-37
	1866 Jul 15 00:21	15°8'		minimum elong	1874 May 12 04:14	21°8'13.39	14°16'37
retrograde	1866 Aug 15 00:31	15°8'09.54		max. Earth dist.	1874 May 12 14:40	21°8'14.15	50.13581 AU
	1866 Sep 15 08:54	15°8'		retrograde	1874 Aug 22 20:10	22°8'42.27	
opposition	1866 Nov 06 19:06	14°8'10.18	-15°-51'-24	opposition	1874 Nov 14 05:35	21°8'43.01	-14°-47'-16
min. Earth dist.	1866 Nov 06 00:37	14°8'11.10	48.34818 AU	min. Earth dist.	1874 Nov 13 20:21	21°8'43.27	48.18148 AU
direct	1867 Jan 27 06:34	13°8'11.47		direct	1875 Feb 03 15:36	20°8'44.30	
conjunction	1867 May 05 15:04	14°8'37.23	-15°-10'-39	conjunction	1875 May 13 09:01	22°8'10.07	-14°-7'-59

minimum elong	1875 May 13 09:13	22°8'10"07	14°08'01	max. Earth dist.	1883 May 21 02:56	29°8'43"53	49.67905 AU
max. Earth dist.	1875 May 13 17:45	22°8'10"36	50.09916 AU		1883 Jun 02 01:09	0°II	
retrograde	1875 Aug 24 01:28	23°8'38"53		retrograde	1883 Aug 31 15:41	1°II13'00	
opposition	1875 Nov 15 09:54	22°8'39"28	-14°-38'-12	opposition	1883 Nov 22 20:18	0°II13'32	-13°-16'-56
min. Earth dist.	1875 Nov 15 02:08	22°8'39"50	48.14209 AU	min. Earth dist.	1883 Nov 22 22:22	0°II13'26	47.69378 AU
direct	1876 Feb 04 18:49	21°8'40"55			1883 Dec 04 21:54	30°R8	
				direct	1884 Feb 12 10:10	29°8'14"45	
conjunction	1876 May 13 14:17	23°8'06"34	-13°-59'-7		1884 Apr 20 00:25	0°II	
minimum elong	1876 May 13 14:28	23°8'06"34	13°59'08				
max. Earth dist.	1876 May 13 23:04	23°8'07"03	50.05958 AU	conjunction	1884 May 21 09:37	0°II40'57	-12°-39'-49
retrograde	1876 Aug 24 02:37	24°8'35"21		minimum elong	1884 May 21 09:49	0°II40'58	12°39'51
opposition	1876 Nov 15 14:03	23°8'35"55	-14°-28'-53	max. Earth dist.	1884 May 21 07:41	0°II40'50	49.60513 AU
min. Earth dist.	1876 Nov 15 07:01	23°8'36"15	48.09970 AU	retrograde	1884 Aug 31 22:10	2°II10'02	
direct	1877 Feb 05 02:16	22°8'37"21		opposition	1884 Nov 23 00:32	1°II10'32	-13°-5'-46
				min. Earth dist.	1884 Nov 23 03:00	1°II10'25	47.61599 AU
conjunction	1877 May 14 19:27	24°8'03"02	-13°-50'00	direct	1885 Feb 12 13:19	0°II11'40	
minimum elong	1877 May 14 19:39	24°8'03"03	13°50'02				
max. Earth dist.	1877 May 15 02:31	24°8'03"26	50.01716 AU	conjunction	1885 May 22 15:10	1°II37'57	-12°-28'-56
retrograde	1877 Aug 25 07:21	25°8'31"51		minimum elong	1885 May 22 15:21	1°II37'58	12°28'57
opposition	1877 Nov 16 18:16	24°8'32"26	-14°-19'-18	max. Earth dist.	1885 May 22 10:52	1°II37'43	49.52658 AU
min. Earth dist.	1877 Nov 16 11:40	24°8'32"45	48.05442 AU	retrograde	1885 Sep 02 04:37	3°II07'05	
direct	1878 Feb 06 07:53	23°8'33"51		opposition	1885 Nov 24 05:00	2°II07'31	-12°-54'-22
				min. Earth dist.	1885 Nov 24 09:18	2°II07'19	47.53396 AU
conjunction	1878 May 16 00:42	24°8'59"36	-13°-40'-39	direct	1886 Feb 13 16:18	1°II08'35	
minimum elong	1878 May 16 00:54	24°8'59"36	13°40'39				
max. Earth dist.	1878 May 16 06:56	24°8'59"57	49.97156 AU	conjunction	1886 May 23 20:48	2°II34'58	-12°-17'-49
retrograde	1878 Aug 26 15:03	26°8'28"26		minimum elong	1886 May 23 21:00	2°II34'58	12°17'50
opposition	1878 Nov 17 22:31	25°8'29"02	-14°-9'-28	max. Earth dist.	1886 May 23 16:24	2°II34'43	49.44401 AU
min. Earth dist.	1878 Nov 17 17:50	25°8'29"16	48.00580 AU	retrograde	1886 Sep 03 07:00	4°II04'09	
direct	1879 Feb 07 10:54	24°8'30"27		opposition	1886 Nov 25 09:20	3°II04'32	-12°-42'-43
				min. Earth dist.	1886 Nov 25 14:26	3°II04'17	47.44811 AU
conjunction	1879 May 17 06:02	25°8'56"16	-13°-31'-3	direct	1887 Feb 14 23:15	2°II05'31	
minimum elong	1879 May 17 06:13	25°8'56"17	13°31'05				
max. Earth dist.	1879 May 17 11:32	25°8'56"35	49.92262 AU	conjunction	1887 May 25 02:19	3°II32'00	-12°-6'-28
retrograde	1879 Aug 27 21:09	27°8'25"09		minimum elong	1887 May 25 02:30	3°II32'01	12°06'28
opposition	1879 Nov 19 02:42	26°8'25"46	-13°-59'-24	max. Earth dist.	1887 May 24 20:08	3°II31'39	49.35808 AU
min. Earth dist.	1879 Nov 18 22:12	26°8'25"59	47.95342 AU	retrograde	1887 Sep 04 11:19	5°II01'16	
direct	1880 Feb 08 13:13	25°8'27"10		opposition	1887 Nov 26 13:44	4°II01'37	-12°-30'-49
				min. Earth dist.	1887 Nov 26 19:22	4°II01'21	47.35918 AU
conjunction	1880 May 17 11:18	26°8'53"03	-13°-21'-14	direct	1888 Feb 16 04:57	3°II02'31	
minimum elong	1880 May 17 11:30	26°8'53"04	13°21'14				
max. Earth dist.	1880 May 17 14:35	26°8'53"15	49.86946 AU	conjunction	1888 May 25 07:55	4°II29'09	-11°-54'-51
retrograde	1880 Aug 28 02:54	28°8'21"59		minimum elong	1888 May 25 08:07	4°II29'09	11°54'53
opposition	1880 Nov 19 07:06	27°8'22"36	-13°-49'-6	max. Earth dist.	1888 May 25 00:53	4°II28'45	49.26903 AU
min. Earth dist.	1880 Nov 19 04:37	27°8'22"43	47.89655 AU	retrograde	1888 Sep 04 18:11	5°II58'31	
direct	1881 Feb 08 16:52	26°8'23"59		opposition	1888 Nov 26 18:19	4°II58'49	-12°-18'-40
				min. Earth dist.	1888 Nov 27 01:39	4°II58'28	47.26722 AU
conjunction	1881 May 18 16:58	27°8'49"58	-13°-11'-12	direct	1889 Feb 16 09:00	3°II59'40	
minimum elong	1881 May 18 17:09	27°8'49"58	13°11'12				
max. Earth dist.	1881 May 18 19:44	27°8'50"07	49.81139 AU	conjunction	1889 May 26 13:42	5°II26'26	-11°-43'-1
retrograde	1881 Aug 29 04:48	29°8'18"55		minimum elong	1889 May 26 13:53	5°II26'26	11°43'01
opposition	1881 Nov 20 11:22	28°8'19"32	-13°-38'-36	max. Earth dist.	1889 May 26 06:05	5°II26'00	49.17721 AU
min. Earth dist.	1881 Nov 20 10:18	28°8'19"35	47.83435 AU	retrograde	1889 Sep 06 01:20	6°II55'55	
direct	1882 Feb 10 00:13	27°8'20"53		opposition	1889 Nov 27 22:41	5°II56'11	-12°-6'-16
				min. Earth dist.	1889 Nov 28 05:55	5°II55'51	47.17242 AU
conjunction	1882 May 19 22:32	28°8'46"56	-13°00'-57	direct	1890 Feb 17 11:06	4°II56'59	
minimum elong	1882 May 19 22:44	28°8'46"57	13°00'57				
max. Earth dist.	1882 May 19 22:51	28°8'46"57	49.74799 AU	conjunction	1890 May 27 19:25	6°II23'55	-11°-30'-55
	1882 Jul 21 21:47	0°II		minimum elong	1890 May 27 19:37	6°II23'56	11°30'56
retrograde	1882 Aug 30 09:52	0°II15'57		max. Earth dist.	1890 May 27 09:52	6°II23'23	49.08243 AU
	1882 Oct 09 08:35	30°R8		retrograde	1890 Sep 07 07:51	7°II53'32	
opposition	1882 Nov 21 15:46	29°8'16"32	-13°-27'-52	opposition	1890 Nov 29 03:22	6°II53'47	-11°-53'-35
min. Earth dist.	1882 Nov 21 15:36	29°8'16"32	47.76676 AU	min. Earth dist.	1890 Nov 29 12:20	6°II53'22	47.07465 AU
direct	1883 Feb 11 05:10	28°8'17"49		direct	1891 Feb 18 14:43	5°II54'32	
conjunction	1883 May 21 03:58	29°8'43"56	-12°-50'-29	conjunction	1891 May 29 01:12	7°II21'40	-11°-18'-34
minimum elong	1883 May 21 04:09	29°8'43"57	12°50'31	minimum elong	1891 May 29 01:24	7°II21'40	11°18'35

max. Earth dist.	1891 May 28 15:40	7°II21'07	48.98446 AU	min. Earth dist.	1899 Dec 08 18:37	15°II41'02	45.99808 AU
retrograde	1891 Sep 08 10:26	8°II51'26		direct	1900 Feb 27 14:50	14°II41'45	
opposition	1891 Nov 30 08:02	7°II51'39	-11°-40'-40	max. Earth dist.	1900 Jun 06 11:38	16°II09'24	47.90260 AU
min. Earth dist.	1891 Nov 30 17:52	7°II51'11	46.97328 AU				
direct	1892 Feb 19 22:03	6°II52'21		conjunction	1900 Jun 07 10:13	16°II10'42	-9°-17'-6
				minimum elong	1900 Jun 07 10:24	16°II10'43	9°17'07
conjunction	1892 May 29 07:09	8°II19'41	-11°-5'-59	retrograde	1900 Sep 17 19:23	17°II41'56	
minimum elong	1892 May 29 07:21	8°II19'42	11°06'01	opposition	1900 Dec 09 04:52	16°II41'25	-9°-33'-35
max. Earth dist.	1892 May 28 19:29	8°II19'01	48.88268 AU	min. Earth dist.	1900 Dec 10 01:38	16°II40'25	45.85972 AU
retrograde	1892 Sep 08 15:54	9°II49'36		direct	1901 Feb 28 18:17	15°II41'05	
opposition	1892 Nov 30 12:39	8°II49'48	-11°-27'-31				
min. Earth dist.	1892 Nov 30 23:27	8°II49'17	46.86782 AU	conjunction	1901 Jun 08 17:07	17°II10'18	-9°-2'-23
direct	1893 Feb 20 03:27	7°II50'26		minimum elong	1901 Jun 08 17:18	17°II10'18	9°02'25
				max. Earth dist.	1901 Jun 07 18:33	17°II08'59	47.76437 AU
conjunction	1893 May 30 13:23	9°II17'58	-10°-53'-11	retrograde	1901 Sep 19 00:36	18°II41'44	
minimum elong	1893 May 30 13:36	9°II17'59	10°53'12	opposition	1901 Dec 10 10:16	17°II41'07	-9°-18'-10
max. Earth dist.	1893 May 30 00:24	9°II17'14	48.77623 AU	min. Earth dist.	1901 Dec 11 07:29	17°II40'05	45.71874 AU
retrograde	1893 Sep 09 22:10	10°II48'04		direct	1902 Mar 02 01:05	16°II40'40	
opposition	1893 Dec 01 17:33	9°II48'13	-11°-14'-7				
min. Earth dist.	1893 Dec 02 06:34	9°II47'36	46.75739 AU	conjunction	1902 Jun 09 23:50	18°II10'10	-8°-47'-24
direct	1894 Feb 21 08:49	8°II48'47		minimum elong	1902 Jun 10 00:01	18°II10'10	8°47'25
				max. Earth dist.	1902 Jun 08 23:27	18°II08'45	47.62362 AU
conjunction	1894 May 31 19:37	10°II16'30	-10°-40'-9	retrograde	1902 Sep 20 06:48	19°II41'50	
minimum elong	1894 May 31 19:48	10°II16'30	10°40'10	opposition	1902 Dec 11 15:44	18°II41'09	-9°-2'-29
max. Earth dist.	1894 May 31 05:30	10°II15'41	48.66478 AU	min. Earth dist.	1902 Dec 12 13:35	18°II40'05	45.57523 AU
retrograde	1894 Sep 11 05:54	11°II46'45		direct	1903 Mar 03 07:12	17°II40'35	
opposition	1894 Dec 02 22:21	10°II46'51	-11°00'-30	max. Earth dist.	1903 Jun 10 05:45	19°II08'55	47.47997 AU
min. Earth dist.	1894 Dec 03 11:50	10°II46'12	46.64179 AU				
direct	1895 Feb 22 12:06	9°II47'18		conjunction	1903 Jun 11 06:54	19°II10'23	-8°-32'-10
max. Earth dist.	1895 Jun 01 09:12	11°II14'16	48.54813 AU	minimum elong	1903 Jun 11 07:04	19°II10'23	8°32'12
				retrograde	1903 Sep 21 12:39	20°II42'19	
conjunction	1895 Jun 02 01:52	11°II15'13	-10°-26'-54	opposition	1903 Dec 12 21:24	19°II41'33	-8°-46'-31
minimum elong	1895 Jun 02 02:04	11°II15'14	10°26'55	min. Earth dist.	1903 Dec 13 21:04	19°II40'24	45.42856 AU
retrograde	1895 Sep 12 14:45	12°II45'37		direct	1904 Mar 03 13:41	18°II40'53	
opposition	1895 Dec 04 03:21	11°II45'37	-10°-46'-38				
min. Earth dist.	1895 Dec 04 18:53	11°II44'53	46.52122 AU	conjunction	1904 Jun 11 14:07	20°II10'59	-8°-16'-41
direct	1896 Feb 23 14:12	10°II45'58		minimum elong	1904 Jun 11 14:17	20°II11'00	8°16'41
				max. Earth dist.	1904 Jun 10 12:05	20°II09'28	47.33299 AU
conjunction	1896 Jun 02 08:16	12°II14'05	-10°-13'-26	retrograde	1904 Sep 21 20:45	21°II43'13	
minimum elong	1896 Jun 02 08:27	12°II14'05	10°13'26	opposition	1904 Dec 13 03:06	20°II42'22	-8°-30'-18
max. Earth dist.	1896 Jun 01 15:13	12°II13'06	48.42667 AU	min. Earth dist.	1904 Dec 14 03:06	20°II41'12	45.27810 AU
retrograde	1896 Sep 12 18:55	13°II44'37		direct	1905 Mar 04 18:30	19°II41'35	
opposition	1896 Dec 04 08:20	12°II44'31	-10°-32'-32				
min. Earth dist.	1896 Dec 05 00:50	12°II43'44	46.39593 AU	conjunction	1905 Jun 12 21:33	21°II12'02	-8°00'-57
direct	1897 Feb 23 21:13	11°II44'44		minimum elong	1905 Jun 12 21:43	21°II12'03	8°00'58
				max. Earth dist.	1905 Jun 11 17:02	21°II10'22	47.18164 AU
conjunction	1897 Jun 03 14:41	13°II13'03	-9°-59'-43	retrograde	1905 Sep 23 07:12	22°II44'33	
minimum elong	1897 Jun 03 14:53	13°II13'03	9°59'44	opposition	1905 Dec 14 09:02	21°II43'37	-8°-13'-50
max. Earth dist.	1897 Jun 02 19:34	13°II11'56	48.30085 AU	min. Earth dist.	1905 Dec 15 11:17	21°II42'20	45.12311 AU
retrograde	1897 Sep 13 22:28	14°II43'44		direct	1906 Mar 05 21:25	20°II42'41	
opposition	1897 Dec 05 13:14	13°II43'32	-10°-18'-11	max. Earth dist.	1906 Jun 13 00:17	22°II11'47	47.02554 AU
min. Earth dist.	1897 Dec 06 06:41	13°II42'42	46.26667 AU				
direct	1898 Feb 25 04:18	12°II43'36		conjunction	1906 Jun 14 05:15	22°II13'29	-7°-44'-58
				minimum elong	1906 Jun 14 05:25	22°II13'30	7°44'59
conjunction	1898 Jun 04 21:13	14°II12'07	-9°-45'-46	retrograde	1906 Sep 24 14:12	23°II46'17	
minimum elong	1898 Jun 04 21:23	14°II12'08	9°45'46	opposition	1906 Dec 15 15:09	22°II45'15	-7°-57'-6
max. Earth dist.	1898 Jun 04 01:03	14°II10'57	48.17114 AU	min. Earth dist.	1906 Dec 16 18:13	22°II43'55	44.96313 AU
retrograde	1898 Sep 15 03:35	15°II42'59		direct	1907 Mar 07 04:17	21°II44'11	
opposition	1898 Dec 06 18:26	14°II42'40	-10°-3'-35	max. Earth dist.	1907 Jun 14 05:25	23°II13'28	46.86452 AU
min. Earth dist.	1898 Dec 07 13:35	14°II41'45	46.13385 AU				
direct	1899 Feb 26 11:08	13°II42'36		conjunction	1907 Jun 15 12:47	23°II15'19	-7°-28'-45
max. Earth dist.	1899 Jun 05 06:55	15°II10'08	48.03831 AU	minimum elong	1907 Jun 15 12:56	23°II15'20	7°28'47
				retrograde	1907 Sep 25 20:53	24°II48'24	
conjunction	1899 Jun 06 03:37	15°II11'20	-9°-31'-33	opposition	1907 Dec 16 21:23	23°II47'15	-7°-40'-7
minimum elong	1899 Jun 06 03:48	15°II11'20	9°31'35	min. Earth dist.	1907 Dec 18 01:47	23°II45'51	44.79836 AU
retrograde	1899 Sep 16 11:23	16°II42'22		direct	1908 Mar 07 11:13	22°II46'01	
opposition	1899 Dec 07 23:35	15°II41'57	-9°-48'-43				

conjunction	1908 Jun 15 20:44	24°II17'31	-7°-12'-18	direct	1916 Mar 15 16:59	1°♄14'07	
minimum elong	1908 Jun 15 20:54	24°II17'31	7°12'19	max. Earth dist.	1916 Jun 23 00:12	2°♄46'24	45.25245 AU
max. Earth dist.	1908 Jun 14 12:10	24°II15'35	46.69864 AU				
retrograde	1908 Sep 26 02:04	25°II50'54		conjunction	1916 Jun 24 17:15	2°♄48'55	-4°-51'-13
opposition	1908 Dec 17 03:40	24°II49'36	-7°-22'-52	minimum elong	1916 Jun 24 17:22	2°♄48'55	4°51'15
min. Earth dist.	1908 Dec 18 09:57	24°II48'06	44.62895 AU	retrograde	1916 Oct 05 01:22	4°♄25'12	
direct	1909 Mar 08 19:55	23°II48'12		opposition	1916 Dec 25 11:32	3°♄22'43	-4°-54'-51
max. Earth dist.	1909 Jun 15 19:08	25°II18'02	46.52852 AU	min. Earth dist.	1916 Dec 27 01:06	3°♄20'49	43.16171 AU
				direct	1917 Mar 16 23:11	2°♄19'49	
conjunction	1909 Jun 17 04:47	25°II20'02	-6°-55'-35	max. Earth dist.	1917 Jun 24 07:18	3°♄52'27	45.05818 AU
minimum elong	1909 Jun 17 04:55	25°II20'03	6°55'36				
retrograde	1909 Sep 27 10:44	26°II53'43		conjunction	1917 Jun 26 02:49	3°♄55'07	-4°-32'-23
opposition	1909 Dec 18 10:02	25°II52'17	-7°-5'-21	minimum elong	1917 Jun 26 02:56	3°♄55'08	4°32'24
min. Earth dist.	1909 Dec 19 16:33	25°II50'46	44.45555 AU	retrograde	1917 Oct 06 12:13	5°♄31'51	
direct	1910 Mar 10 01:15	24°II50'42		opposition	1917 Dec 26 19:28	4°♄29'12	-4°-35'-4
max. Earth dist.	1910 Jun 17 01:07	26°II20'46	46.35447 AU	min. Earth dist.	1917 Dec 28 10:41	4°♄27'13	42.96440 AU
				direct	1918 Mar 18 06:18	3°♄26'06	
conjunction	1910 Jun 18 12:47	26°II22'54	-6°-38'-37	max. Earth dist.	1918 Jun 25 16:09	4°♄59'09	44.85941 AU
minimum elong	1910 Jun 18 12:56	26°II22'54	6°38'38				
retrograde	1910 Sep 28 20:28	27°II56'55		conjunction	1918 Jun 27 12:39	5°♄01'54	-4°-13'-18
opposition	1910 Dec 19 16:39	26°II55'19	-6°-47'-34	minimum elong	1918 Jun 27 12:45	5°♄01'54	4°13'19
min. Earth dist.	1910 Dec 21 01:10	26°II53'42	44.27867 AU	retrograde	1918 Oct 07 19:12	6°♄39'04	
direct	1911 Mar 11 05:17	25°II53'32		opposition	1918 Dec 28 03:41	5°♄36'14	-4°-15'-1
max. Earth dist.	1911 Jun 18 09:22	27°II23'59	46.17727 AU	min. Earth dist.	1918 Dec 29 20:29	5°♄34'09	42.76245 AU
				direct	1919 Mar 19 17:34	4°♄32'54	
conjunction	1911 Jun 19 21:05	27°II26'07	-6°-21'-23	max. Earth dist.	1919 Jun 27 00:39	6°♄06'21	44.65617 AU
minimum elong	1911 Jun 19 21:14	27°II26'08	6°21'24				
retrograde	1911 Sep 30 04:37	29°II00'27		conjunction	1919 Jun 28 22:41	6°♄09'13	-3°-53'-57
opposition	1911 Dec 20 23:16	27°II58'42	-6°-29'-30	minimum elong	1919 Jun 28 22:47	6°♄09'13	3°53'58
min. Earth dist.	1911 Dec 22 08:06	27°II57'04	44.09884 AU	retrograde	1919 Oct 09 04:02	7°♄46'49	
direct	1912 Mar 11 12:46	26°II56'44		opposition	1919 Dec 29 11:55	6°♄43'47	-3°-54'-41
max. Earth dist.	1912 Jun 18 15:43	28°II27'28	45.99735 AU	min. Earth dist.	1919 Dec 31 05:15	6°♄41'40	42.55610 AU
				direct	1920 Mar 20 02:47	5°♄40'12	
conjunction	1912 Jun 20 05:26	28°II29'44	-6°-3'-54	max. Earth dist.	1920 Jun 27 08:52	7°♄14'02	44.44841 AU
minimum elong	1912 Jun 20 05:35	28°II29'44	6°03'55				
	1912 Sep 10 16:27	0°♄		conjunction	1920 Jun 29 09:00	7°♄17'01	-3°-34'-20
retrograde	1912 Sep 30 13:09	0°♄04'24		minimum elong	1920 Jun 29 09:05	7°♄17'02	3°34'21
	1912 Oct 20 08:21	30°RII		retrograde	1920 Oct 09 14:24	8°♄55'05	
opposition	1912 Dec 21 06:09	29°II02'30	-6°-11'-9	opposition	1920 Dec 29 20:33	7°♄51'50	-3°-34'-4
min. Earth dist.	1912 Dec 22 15:53	29°II00'49	43.91654 AU	min. Earth dist.	1920 Dec 31 16:11	7°♄49'36	42.34550 AU
direct	1913 Mar 12 20:19	28°II00'20		direct	1921 Mar 21 10:00	6°♄47'59	
max. Earth dist.	1913 Jun 19 23:54	29°II31'27	45.81486 AU	max. Earth dist.	1921 Jun 28 19:03	8°♄22'18	44.23666 AU
conjunction	1913 Jun 21 14:09	29°II33'45	-5°-46'-8	conjunction	1921 Jun 30 19:35	8°♄25'20	-3°-14'-28
minimum elong	1913 Jun 21 14:17	29°II33'46	5°46'08	minimum elong	1921 Jun 30 19:40	8°♄25'20	3°14'28
	1913 Jul 09 22:24	0°♄		retrograde	1921 Oct 11 01:05	10°♄03'52	
retrograde	1913 Oct 01 19:26	1°♄08'48		opposition	1921 Dec 31 05:11	9°♄00'23	-3°-13'-10
opposition	1913 Dec 22 13:14	0°♄06'45	-5°-52'-30	min. Earth dist.	1922 Jan 02 01:06	8°♄58'07	42.13120 AU
min. Earth dist.	1913 Dec 24 00:18	0°♄04'59	43.73180 AU	direct	1922 Mar 22 18:40	7°♄56'15	
	1913 Dec 28 04:18	30°RII		max. Earth dist.	1922 Jun 30 03:23	9°♄30'58	44.02150 AU
direct	1914 Mar 14 05:02	29°II04'24					
	1914 May 26 20:42	0°♄		conjunction	1922 Jul 02 06:13	9°♄34'09	-2°-54'-19
max. Earth dist.	1914 Jun 21 07:52	0°♄35'53	45.63018 AU	minimum elong	1922 Jul 02 06:17	9°♄34'09	2°54'20
				retrograde	1922 Oct 12 14:08	11°♄13'10	
conjunction	1914 Jun 22 22:57	0°♄38'15	-5°-28'-6	opposition	1923 Jan 01 14:11	10°♄09'27	-2°-51'-58
minimum elong	1914 Jun 22 23:05	0°♄38'16	5°28'08	min. Earth dist.	1923 Jan 03 11:30	10°♄07'06	41.91400 AU
retrograde	1914 Oct 03 03:15	2°♄13'42		direct	1923 Mar 24 02:07	9°♄05'02	
opposition	1914 Dec 23 20:27	1°♄11'30	-5°-33'-34	max. Earth dist.	1923 Jul 01 14:04	10°♄40'18	43.80351 AU
min. Earth dist.	1914 Dec 25 07:32	1°♄09'44	43.54478 AU				
direct	1915 Mar 15 12:31	0°♄08'59		conjunction	1923 Jul 03 17:05	10°♄43'31	-2°-33'-55
max. Earth dist.	1915 Jun 22 14:55	1°♄40'48	45.44286 AU	minimum elong	1923 Jul 03 17:09	10°♄43'31	2°33'56
				retrograde	1923 Oct 14 00:01	12°♄23'02	
conjunction	1915 Jun 24 07:49	1°♄43'17	-5°-9'-48	opposition	1924 Jan 02 23:26	11°♄19'05	-2°-30'-29
minimum elong	1915 Jun 24 07:56	1°♄43'18	5°09'48	min. Earth dist.	1924 Jan 04 21:43	11°♄16'40	41.69424 AU
retrograde	1915 Oct 04 14:44	3°♄19'09		direct	1924 Mar 24 12:43	10°♄14'23	
opposition	1915 Dec 25 04:00	2°♄16'49	-5°-14'-21	max. Earth dist.	1924 Jul 02 00:00	11°♄50'08	43.58336 AU
min. Earth dist.	1915 Dec 26 17:02	2°♄14'57	43.35499 AU				

conjunction	1924 Jul 04 04:14	11° $\mathring{53}'27''$	-2°-13'-14	conjunction	1932 Jul 14 09:33	21° $\mathring{42}'08''$	0°41'39
minimum elong	1924 Jul 04 04:18	11° $\mathring{53}'28''$	2°13'15	minimum elong	1932 Jul 14 09:32	21° $\mathring{42}'07''$	0°41'40
retrograde	1924 Oct 14 09:40	13° $\mathring{53}'30''$		retrograde	1932 Oct 24 17:44	23° $\mathring{27}'22''$	
opposition	1925 Jan 03 08:45	12° $\mathring{29}'20''$	-2°-8'-43	opposition	1933 Jan 12 23:40	22° $\mathring{21}'20''$	0°55'45
min. Earth dist.	1925 Jan 05 07:17	12° $\mathring{26}'54''$	41.47266 AU	min. Earth dist.	1933 Jan 15 07:00	22° $\mathring{18}'20''$	39.62334 AU
direct	1925 Mar 25 23:07	11° $\mathring{24}'22''$		direct	1933 Apr 04 07:29	21° $\mathring{14}'05''$	
max. Earth dist.	1925 Jul 03 10:10	13° $\mathring{00}'38''$	43.36131 AU	max. Earth dist.	1933 Jul 13 09:53	22° $\mathring{55}'32''$	41.50232 AU
conjunction	1925 Jul 05 15:45	13° $\mathring{04}'04''$	-1°-52'-18	conjunction	1933 Jul 15 23:59	22° $\mathring{59}'41''$	1°04'39
minimum elong	1925 Jul 05 15:48	13° $\mathring{04}'04''$	1°52'19	minimum elong	1933 Jul 15 23:58	22° $\mathring{59}'41''$	1°04'38
retrograde	1925 Oct 15 20:16	14° $\mathring{04}'41''$		retrograde	1933 Oct 26 08:09	24° $\mathring{45}'38''$	
opposition	1926 Jan 04 18:37	13° $\mathring{40}'17''$	-1°-46'-39	opposition	1934 Jan 14 12:05	23° $\mathring{39}'17''$	1°20'03
min. Earth dist.	1926 Jan 06 18:43	13° $\mathring{37}'45''$	41.24947 AU	min. Earth dist.	1934 Jan 16 19:52	23° $\mathring{36}'15''$	39.37891 AU
direct	1926 Mar 27 08:09	12° $\mathring{35}'03''$		direct	1934 Apr 05 19:22	22° $\mathring{31}'41''$	
max. Earth dist.	1926 Jul 04 21:55	14° $\mathring{11}'58''$	43.13784 AU	max. Earth dist.	1934 Jul 14 22:28	24° $\mathring{13}'47''$	41.25652 AU
conjunction	1926 Jul 07 03:23	14° $\mathring{15}'24''$	-1°-31'-5	conjunction	1934 Jul 17 14:25	24° $\mathring{18}'05''$	1°27'53
minimum elong	1926 Jul 07 03:26	14° $\mathring{15}'24''$	1°31'06	minimum elong	1934 Jul 17 14:22	24° $\mathring{18}'05''$	1°27'53
retrograde	1926 Oct 17 08:51	15° $\mathring{56}'38''$		retrograde	1934 Oct 28 00:34	26° $\mathring{04}'46''$	
opposition	1927 Jan 06 04:37	14° $\mathring{52}'01''$	-1°-24'-18	opposition	1935 Jan 16 00:49	24° $\mathring{58}'06''$	1°44'37
min. Earth dist.	1927 Jan 08 04:26	14° $\mathring{49}'30''$	41.02484 AU	min. Earth dist.	1935 Jan 18 09:33	24° $\mathring{55}'00''$	39.13248 AU
direct	1927 Mar 28 16:01	13° $\mathring{46}'32''$		direct	1935 Apr 07 07:54	23° $\mathring{50}'07''$	
max. Earth dist.	1927 Jul 06 07:58	15° $\mathring{24}'00''$	42.91276 AU	max. Earth dist.	1935 Jul 16 12:55	25° $\mathring{32}'59''$	41.00874 AU
conjunction	1927 Jul 08 15:24	15° $\mathring{27}'34''$	-1°-9'-36	conjunction	1935 Jul 19 05:29	25° $\mathring{37}'22''$	1°51'21
minimum elong	1927 Jul 08 15:26	15° $\mathring{27}'34''$	1°09'38	minimum elong	1935 Jul 19 05:25	25° $\mathring{37}'22''$	1°51'21
retrograde	1927 Oct 18 23:12	17° $\mathring{09}'26''$		retrograde	1935 Oct 29 14:18	27° $\mathring{24}'47''$	
opposition	1928 Jan 07 14:53	16° $\mathring{04}'37''$	-1°-1'-39	opposition	1936 Jan 17 13:55	26° $\mathring{17}'47''$	2°09'26
min. Earth dist.	1928 Jan 09 16:22	16° $\mathring{02}'00''$	40.79859 AU	min. Earth dist.	1936 Jan 19 23:53	26° $\mathring{14}'35''$	38.88449 AU
direct	1928 Mar 28 23:46	14° $\mathring{58}'52''$		direct	1936 Apr 07 23:25	25° $\mathring{09}'25''$	
max. Earth dist.	1928 Jul 06 20:22	16° $\mathring{37}'02''$	42.68561 AU	max. Earth dist.	1936 Jul 17 03:42	26° $\mathring{53}'04''$	40.75979 AU
conjunction	1928 Jul 09 03:58	16° $\mathring{40}'39''$	0°-47'-52	conjunction	1936 Jul 19 20:52	26° $\mathring{57}'32''$	2°15'03
minimum elong	1928 Jul 09 04:00	16° $\mathring{40}'39''$	0°47'52	minimum elong	1936 Jul 19 20:48	26° $\mathring{57}'32''$	2°15'03
retrograde	1928 Oct 19 12:07	18° $\mathring{23}'09''$		retrograde	1936 Oct 30 05:20	28° $\mathring{45}'43''$	
opposition	1929 Jan 08 01:34	17° $\mathring{18}'07''$	0°-38'-44	opposition	1937 Jan 18 03:23	27° $\mathring{38}'24''$	2°34'30
min. Earth dist.	1929 Jan 10 03:52	17° $\mathring{15}'27''$	40.56992 AU	min. Earth dist.	1937 Jan 20 13:07	27° $\mathring{35}'12''$	38.63567 AU
direct	1929 Mar 30 11:50	16° $\mathring{12}'07''$		direct	1937 Apr 09 13:47	26° $\mathring{29}'39''$	
max. Earth dist.	1929 Jul 08 07:21	17° $\mathring{50}'54''$	42.45575 AU	max. Earth dist.	1937 Jul 18 18:04	28° $\mathring{14}'04''$	40.50995 AU
conjunction	1929 Jul 10 16:46	17° $\mathring{54}'39''$	0°-25'-52	conjunction	1937 Jul 21 12:39	28° $\mathring{18}'39''$	2°38'57
minimum elong	1929 Jul 10 16:47	17° $\mathring{54}'39''$	0°25'53	minimum elong	1937 Jul 21 12:34	28° $\mathring{18}'39''$	2°38'57
retrograde	1929 Oct 21 02:07	19° $\mathring{37}'49''$		retrograde	1937 Oct 07 12:14	0° $\mathring{0}'0''$	
opposition	1930 Jan 09 12:28	18° $\mathring{32}'34''$	0°-15'-31	opposition	1937 Oct 31 20:07	0° $\mathring{10}'40''$	
min. Earth dist.	1930 Jan 11 15:35	18° $\mathring{29}'51''$	40.33838 AU	min. Earth dist.	1937 Nov 25 09:06	30° $\mathring{R}07''$	
direct	1930 Mar 31 23:39	17° $\mathring{26}'18''$		direct	1938 Jan 19 17:24	29° $\mathring{00}'01''$	2°59'49
max. Earth dist.	1930 Jul 09 19:16	19° $\mathring{05}'43''$	42.22250 AU	max. Earth dist.	1938 Jan 22 04:41	28° $\mathring{56}'43''$	38.38639 AU
conjunction	1930 Jul 12 06:04	19° $\mathring{09}'35''$	0°-3'-41	conjunction	1938 Apr 11 01:54	27° $\mathring{50}'55''$	
minimum elong	1930 Jul 12 06:04	19° $\mathring{09}'35''$	0°03'41	minimum elong	1938 Jul 20 10:45	29° $\mathring{36}'14''$	40.25985 AU
behind sun begin	1930 Jul 11 23:35	19° $\mathring{09}'11''$		behind sun begin	1938 Jul 23 04:55	29° $\mathring{40}'50''$	3°03'04
behind sun end	1930 Jul 12 12:32	19° $\mathring{09}'59''$		behind sun end	1938 Jul 23 04:49	29° $\mathring{40}'49''$	3°03'04
asc. node	1930 Sep 09 11:06	20° $\mathring{31}'14''$		asc. node	1938 Aug 03 17:58	0° $\mathring{0}'0''$	
retrograde	1930 Oct 22 13:32	20° $\mathring{53}'27''$		retrograde	1938 Nov 02 12:19	1° $\mathring{13}'04''$	
opposition	1931 Jan 10 23:58	19° $\mathring{47}'57''$	0°07'57	opposition	1939 Jan 21 07:47	0° $\mathring{12}'24''$	3°25'21
min. Earth dist.	1931 Jan 13 05:01	19° $\mathring{45}'06''$	40.10340 AU	min. Earth dist.	1939 Jan 23 18:44	0° $\mathring{19}'26''$	38.13696 AU
direct	1931 Apr 02 11:25	18° $\mathring{41}'22''$		direct	1939 Feb 07 12:56	30° $\mathring{R}08''$	
max. Earth dist.	1931 Jul 11 08:01	20° $\mathring{21}'28''$	41.98584 AU	max. Earth dist.	1939 Apr 12 15:16	29° $\mathring{13}'16''$	
conjunction	1931 Jul 13 19:34	20° $\mathring{25}'25''$	0°18'55	conjunction	1939 Jun 14 04:49	0° $\mathring{0}'0''$	
minimum elong	1931 Jul 13 19:34	20° $\mathring{25}'25''$	0°18'54	minimum elong	1939 Jul 22 01:32	0° $\mathring{15}'24''$	40.00951 AU
retrograde	1931 Oct 24 01:48	22° $\mathring{09}'58''$		retrograde	1939 Jul 24 21:29	1° $\mathring{04}'09''$	3°27'23
opposition	1932 Jan 12 11:39	21° $\mathring{04}'13''$	0°31'43	opposition	1939 Jul 24 21:23	1° $\mathring{04}'09''$	3°27'23
min. Earth dist.	1932 Jan 14 16:57	21° $\mathring{01}'20''$	39.86497 AU	min. Earth dist.	1939 Nov 04 08:07	2° $\mathring{15}'45''$	
direct	1932 Apr 02 22:59	19° $\mathring{57}'18''$		direct	1940 Jan 22 22:40	1° $\mathring{14}'63''$	3°51'06
max. Earth dist.	1932 Jul 11 19:33	21° $\mathring{38}'00''$	41.74562 AU	max. Earth dist.	1940 Jan 25 10:44	1° $\mathring{14}'31''$	37.88727 AU
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






















































































































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					1948 Aug 21 14:13	15°Ω	
conjunction	1940 Jul 25 14:52	2°Ω28'44	3°51'52	retrograde	1948 Nov 17 20:18	16°Ω33'53	
minimum elong	1940 Jul 25 14:45	2°Ω28'43	3°51'52	opposition	1949 Feb 04 12:14	15°Ω22'27	7°50'33
retrograde	1940 Nov 05 01:31	4°Ω20'24		min. Earth dist.	1949 Feb 07 06:46	15°Ω18'30	35.58017 AU
opposition	1941 Jan 23 13:59	3°Ω11'51	4°17'03		1949 Feb 20 11:11	15°RΩ	
min. Earth dist.	1941 Jan 26 02:55	3°Ω08'24	37.63666 AU	direct	1949 Apr 26 14:00	14°Ω08'52	
direct	1941 Apr 14 18:25	2°Ω01'41			1949 Jun 28 16:57	15°Ω	
max. Earth dist.	1941 Jul 24 11:29	3°Ω49'43	39.50619 AU	max. Earth dist.	1949 Aug 05 22:45	16°Ω05'13	37.43321 AU
conjunction	1941 Jul 27 08:39	3°Ω54'38	4°16'32	conjunction	1949 Aug 09 02:53	16°Ω11'01	7°38'28
minimum elong	1941 Jul 27 08:31	3°Ω54'37	4°16'33	minimum elong	1949 Aug 09 02:39	16°Ω11'00	7°38'28
retrograde	1941 Nov 06 20:45	5°Ω47'15		retrograde	1949 Nov 19 18:23	18°Ω11'59	
opposition	1942 Jan 25 05:52	4°Ω38'24	4°43'12	opposition	1950 Feb 06 08:47	17°Ω00'09	8°17'38
min. Earth dist.	1942 Jan 27 19:13	4°Ω34'54	37.38475 AU	min. Earth dist.	1950 Feb 09 04:31	16°Ω56'05	35.32253 AU
direct	1942 Apr 16 11:02	3°Ω27'51		direct	1950 Apr 28 08:40	15°Ω46'07	
max. Earth dist.	1942 Jul 26 04:25	5°Ω16'50	39.25205 AU	max. Earth dist.	1950 Aug 07 22:14	17°Ω43'43	37.17428 AU
conjunction	1942 Jul 29 02:55	5°Ω21'53	4°41'22	conjunction	1950 Aug 11 01:37	17°Ω49'32	8°03'56
minimum elong	1942 Jul 29 02:46	5°Ω21'53	4°41'22	minimum elong	1950 Aug 11 01:20	17°Ω49'31	8°03'55
retrograde	1942 Nov 08 14:42	7°Ω15'29		retrograde	1950 Nov 21 15:56	19°Ω51'40	
opposition	1943 Jan 26 22:26	6°Ω06'19	5°09'33	opposition	1951 Feb 08 05:49	18°Ω39'27	8°44'42
min. Earth dist.	1943 Jan 29 13:36	6°Ω02'41	37.13091 AU	min. Earth dist.	1951 Feb 11 00:41	18°Ω35'24	35.06671 AU
direct	1943 Apr 18 03:04	4°Ω55'23		direct	1951 Apr 30 05:19	17°Ω24'58	
max. Earth dist.	1943 Jul 27 22:59	6°Ω45'22	38.99595 AU	max. Earth dist.	1951 Aug 09 20:24	19°Ω23'44	36.91717 AU
conjunction	1943 Jul 30 21:52	6°Ω50'30	5°06'22	conjunction	1951 Aug 13 01:05	19°Ω29'41	8°29'21
minimum elong	1943 Jul 30 21:42	6°Ω50'29	5°06'22	minimum elong	1951 Aug 13 00:48	19°Ω29'40	8°29'21
retrograde	1943 Nov 10 09:00	8°Ω45'05		retrograde	1951 Nov 23 16:28	21°Ω33'02	
opposition	1944 Jan 28 15:15	7°Ω35'35	5°36'03	opposition	1952 Feb 10 03:26	20°Ω20'26	9°11'43
min. Earth dist.	1944 Jan 31 06:23	7°Ω31'56	36.87510 AU	min. Earth dist.	1952 Feb 12 23:16	20°Ω16'19	34.81290 AU
direct	1944 Apr 18 19:22	6°Ω24'15		direct	1952 Apr 30 23:20	19°Ω05'30	
max. Earth dist.	1944 Jul 28 16:19	8°Ω15'09	38.73774 AU	max. Earth dist.	1952 Aug 10 21:38	21°Ω05'39	36.66180 AU
conjunction	1944 Jul 31 17:22	8°Ω20'28	5°31'29	conjunction	1952 Aug 14 01:27	21°Ω11'36	8°54'40
minimum elong	1944 Jul 31 17:11	8°Ω20'28	5°31'29	minimum elong	1952 Aug 14 01:10	21°Ω11'34	8°54'40
retrograde	1944 Nov 11 05:11	10°Ω16'04		retrograde	1952 Nov 24 17:04	23°Ω16'11	
opposition	1945 Jan 29 08:50	9°Ω06'13	6°02'44	opposition	1953 Feb 11 01:54	22°Ω03'12	9°38'39
min. Earth dist.	1945 Feb 01 01:47	9°Ω02'26	36.61751 AU	min. Earth dist.	1953 Feb 13 21:46	21°Ω59'04	34.56068 AU
direct	1945 Apr 20 10:21	7°Ω54'27		direct	1953 May 02 20:21	20°Ω47'51	
max. Earth dist.	1945 Jul 30 12:32	9°Ω46'26	38.47780 AU	max. Earth dist.	1953 Aug 12 21:21	22°Ω49'14	36.40782 AU
conjunction	1945 Aug 02 13:26	9°Ω51'48	5°56'44	conjunction	1953 Aug 16 02:16	22°Ω55'19	9°19'54
minimum elong	1945 Aug 02 13:14	9°Ω51'47	5°56'45	minimum elong	1953 Aug 16 01:57	22°Ω55'18	9°19'54
retrograde	1945 Nov 13 01:54	11°Ω48'25		retrograde	1953 Nov 26 20:44	25°Ω01'11	
opposition	1946 Jan 31 02:52	10°Ω38'11	6°29'33	opposition	1954 Feb 13 01:02	23°Ω47'49	10°05'29
min. Earth dist.	1946 Feb 02 20:07	10°Ω34'23	36.35849 AU	min. Earth dist.	1954 Feb 15 21:10	23°Ω43'38	34.30984 AU
direct	1946 Apr 22 03:51	9°Ω25'59		direct	1954 May 04 17:45	22°Ω32'01	
max. Earth dist.	1946 Aug 01 07:14	11°Ω18'57	38.21675 AU	max. Earth dist.	1954 Aug 14 23:03	24°Ω34'45	36.15474 AU
conjunction	1946 Aug 04 09:53	11°Ω24'30	6°22'05	conjunction	1954 Aug 18 04:03	24°Ω40'54	9°44'58
minimum elong	1946 Aug 04 09:40	11°Ω24'29	6°22'05	minimum elong	1954 Aug 18 03:44	24°Ω40'52	9°44'58
retrograde	1946 Nov 15 00:41	13°Ω22'10		retrograde	1954 Nov 28 23:44	26°Ω48'03	
opposition	1947 Feb 01 21:23	12°Ω11'32	6°56'28	opposition	1955 Feb 15 01:01	25°Ω34'17	10°32'10
min. Earth dist.	1947 Feb 04 15:22	12°Ω07'40	36.09891 AU	min. Earth dist.	1955 Feb 17 22:07	25°Ω30'00	34.05985 AU
direct	1947 Apr 23 20:47	10°Ω58'52		direct	1955 May 06 18:29	24°Ω18'01	
max. Earth dist.	1947 Aug 03 04:09	12°Ω52'58	37.95513 AU	max. Earth dist.	1955 Aug 17 01:07	26°Ω22'05	35.90255 AU
conjunction	1947 Aug 06 06:59	12°Ω58'34	6°47'31	conjunction	1955 Aug 20 06:26	26°Ω28'20	10°09'53
minimum elong	1947 Aug 06 06:46	12°Ω58'33	6°47'31	minimum elong	1955 Aug 20 06:06	26°Ω28'18	10°09'53
retrograde	1947 Nov 16 21:42	14°Ω57'19		retrograde	1955 Dec 01 04:47	28°Ω36'46	
opposition	1948 Feb 03 16:38	13°Ω46'17	7°23'29	opposition	1956 Feb 17 01:40	27°Ω22'35	10°58'40
min. Earth dist.	1948 Feb 06 11:32	13°Ω42'19	35.83917 AU	min. Earth dist.	1956 Feb 19 22:19	27°Ω18'19	33.81072 AU
direct	1948 Apr 24 16:58	12°Ω33'10		direct	1956 May 07 19:59	26°Ω05'50	
max. Earth dist.	1948 Aug 04 01:24	14°Ω28'22	37.69377 AU	max. Earth dist.	1956 Aug 18 03:25	28°Ω11'12	35.65099 AU
conjunction	1948 Aug 07 04:37	14°Ω34'04	7°12'59	conjunction	1956 Aug 21 09:43	28°Ω17'36	10°34'34

minimum elong	1956 Aug 21 09:23	28° Ω 17'34	10°34'34	conjunction	1964 Sep 06 13:55	13° \mp 59'09	13°37'36
	1956 Oct 20 06:20	0° \mp		minimum elong	1964 Sep 06 13:33	13° \mp 59'07	13°37'35
retrograde	1956 Dec 02 07:16	0° \mp 27'20		retrograde	1964 Dec 18 18:38	16° \mp 19'51	
	1957 Jan 15 02:36	30° $\mathcal{R}\Omega$		opposition	1965 Mar 05 19:44	15° \mp 01'50	14°39'15
opposition	1957 Feb 18 03:13	29° Ω 12'44	11°24'56	min. Earth dist.	1965 Mar 08 14:04	14° \mp 57'26	31.68982 AU
min. Earth dist.	1957 Feb 21 01:14	29° Ω 08'20	33.56255 AU	direct	1965 May 25 05:21	13° \mp 40'46	
direct	1957 May 09 19:50	27° Ω 55'29		max. Earth dist.	1965 Sep 05 21:41	15° \mp 59'28	33.52051 AU
	1957 Aug 19 04:28	0° \mp					
max. Earth dist.	1957 Aug 20 08:05	0° \mp 02'16	35.40067 AU	conjunction	1965 Sep 09 00:01	16° \mp 06'05	13°57'39
				minimum elong	1965 Sep 08 23:38	16° \mp 06'03	13°57'40
conjunction	1957 Aug 23 13:43	0° \mp 08'41	10°59'00	retrograde	1965 Dec 21 05:05	18° \mp 28'15	
minimum elong	1957 Aug 23 13:22	0° \mp 08'39	10°59'01	opposition	1966 Mar 08 04:47	17° \mp 09'52	15°00'27
retrograde	1957 Dec 04 10:31	2° \mp 19'43		min. Earth dist.	1966 Mar 10 23:26	17° \mp 05'26	31.47810 AU
opposition	1958 Feb 20 05:28	1° \mp 04'41	11°50'56	direct	1966 May 27 11:12	15° \mp 48'24	
min. Earth dist.	1958 Feb 23 02:46	1° \mp 00'18	33.31586 AU	max. Earth dist.	1966 Sep 08 10:33	18° \mp 08'46	33.30837 AU
	1958 Apr 11 14:47	30° $\mathcal{R}\Omega$					
direct	1958 May 11 22:01	29° Ω 46'56		conjunction	1966 Sep 11 10:54	18° \mp 15'17	14°16'52
	1958 Jun 10 19:01	0° \mp		minimum elong	1966 Sep 11 10:32	18° \mp 15'15	14°16'51
max. Earth dist.	1958 Aug 22 11:22	1° \mp 55'01	35.15202 AU	retrograde	1966 Dec 23 15:37	20° \mp 38'52	
				opposition	1967 Mar 10 14:42	19° \mp 20'08	15°20'45
conjunction	1958 Aug 25 18:12	2° \mp 01'35	11°23'07	min. Earth dist.	1967 Mar 13 08:02	19° \mp 15'45	31.27138 AU
minimum elong	1958 Aug 25 17:50	2° \mp 01'33	11°23'07	direct	1967 May 29 20:30	17° \mp 58'16	
retrograde	1958 Dec 06 15:42	4° \mp 13'58		max. Earth dist.	1967 Sep 10 21:56	20° \mp 20'04	33.10125 AU
opposition	1959 Feb 22 08:29	2° \mp 58'28	12°16'35				
min. Earth dist.	1959 Feb 25 06:33	2° \mp 54'00	33.07134 AU	conjunction	1967 Sep 13 22:41	20° \mp 26'42	14°35'10
direct	1959 May 13 21:51	1° \mp 40'12		minimum elong	1967 Sep 13 22:19	20° \mp 26'40	14°35'11
max. Earth dist.	1959 Aug 24 18:03	3° \mp 49'47	34.90575 AU	retrograde	1967 Dec 26 04:47	22° \mp 51'41	
				opposition	1968 Mar 12 01:25	21° \mp 32'35	15°40'03
conjunction	1959 Aug 27 23:42	3° \mp 56'19	11°46'52	min. Earth dist.	1968 Mar 14 18:29	21° \mp 28'12	31.06969 AU
minimum elong	1959 Aug 27 23:20	3° \mp 56'17	11°46'53	direct	1968 May 31 04:01	20° \mp 10'19	
retrograde	1959 Dec 08 20:26	6° \mp 10'02		max. Earth dist.	1968 Sep 12 12:38	22° \mp 33'45	32.89918 AU
opposition	1960 Feb 24 12:12	4° \mp 54'05	12°41'50				
min. Earth dist.	1960 Feb 27 09:51	4° \mp 49'37	32.82955 AU	conjunction	1968 Sep 15 11:27	22° \mp 40'15	14°52'30
direct	1960 May 15 00:48	3° \mp 35'18		minimum elong	1968 Sep 15 11:06	22° \mp 40'13	14°52'29
max. Earth dist.	1960 Aug 25 23:36	5° \mp 46'16	34.66271 AU	retrograde	1968 Dec 27 17:05	25° \mp 06'37	
				opposition	1969 Mar 14 13:16	23° \mp 47'09	15°58'17
conjunction	1960 Aug 29 05:47	5° \mp 52'54	12°10'11	min. Earth dist.	1969 Mar 17 05:35	23° \mp 42'48	30.87295 AU
minimum elong	1960 Aug 29 05:25	5° \mp 52'52	12°10'10	direct	1969 Jun 02 14:00	22° \mp 24'29	
retrograde	1960 Dec 10 04:38	8° \mp 07'59		max. Earth dist.	1969 Sep 15 02:06	24° \mp 49'20	32.70250 AU
opposition	1961 Feb 25 16:47	6° \mp 51'35	13°06'35				
min. Earth dist.	1961 Feb 28 14:05	6° \mp 47'06	32.59154 AU	conjunction	1969 Sep 18 00:40	24° \mp 55'52	15°08'47
direct	1961 May 17 04:23	5° \mp 32'17		minimum elong	1969 Sep 18 00:19	24° \mp 55'50	15°08'48
max. Earth dist.	1961 Aug 28 07:38	7° \mp 44'48	34.42363 AU	retrograde	1969 Dec 30 08:07	27° \mp 23'35	
				opposition	1970 Mar 17 01:51	26° \mp 03'44	16°15'22
conjunction	1961 Aug 31 12:38	7° \mp 51'24	12°32'59	min. Earth dist.	1970 Mar 19 16:57	25° \mp 59'27	30.68173 AU
minimum elong	1961 Aug 31 12:15	7° \mp 51'22	12°32'59	direct	1970 Jun 05 02:24	24° \mp 40'40	
retrograde	1961 Dec 12 11:54	10° \mp 07'52		max. Earth dist.	1970 Sep 17 18:06	27° \mp 07'03	32.51154 AU
opposition	1962 Feb 27 22:21	8° \mp 51'00	13°30'47				
min. Earth dist.	1962 Mar 02 19:36	8° \mp 46'31	32.35795 AU	conjunction	1970 Sep 20 14:53	27° \mp 13'28	15°23'57
direct	1962 May 19 09:38	7° \mp 31'15		minimum elong	1970 Sep 20 14:34	27° \mp 13'26	15°23'56
max. Earth dist.	1962 Aug 30 15:44	9° \mp 45'15	34.18958 AU	retrograde	1971 Jan 01 21:59	29° \mp 42'28	
				opposition	1971 Mar 19 15:17	28° \mp 22'14	16°31'13
conjunction	1962 Sep 02 20:10	9° \mp 51'52	12°55'12	min. Earth dist.	1971 Mar 22 06:04	28° \mp 17'57	30.49635 AU
minimum elong	1962 Sep 02 19:47	9° \mp 51'50	12°55'11	direct	1971 Jun 07 15:16	26° \mp 58'46	
retrograde	1962 Dec 14 21:45	12° \mp 09'44		max. Earth dist.	1971 Sep 20 09:58	29° \mp 26'33	32.32707 AU
opposition	1963 Mar 02 04:30	10° \mp 52'28	13°54'21				
min. Earth dist.	1963 Mar 05 00:15	10° \mp 48'02	32.12970 AU	conjunction	1971 Sep 23 05:41	29° \mp 32'56	15°37'53
direct	1963 May 21 15:41	9° \mp 32'14		minimum elong	1971 Sep 23 05:23	29° \mp 32'54	15°37'54
max. Earth dist.	1963 Sep 02 00:45	11° \mp 47'47	33.96092 AU	retrograde	1971 Oct 05 06:18	0° $\underline{\Omega}$	
conjunction	1963 Sep 05 04:39	11° \mp 54'25	13°16'46	retrograde	1972 Jan 04 14:44	2° $\underline{\Omega}$ 03'10	
minimum elong	1963 Sep 05 04:16	11° \mp 54'23	13°16'46	opposition	1972 Mar 21 05:30	0° $\underline{\Omega}$ 42'34	16°45'44
retrograde	1963 Dec 17 07:07	14° \mp 13'43		min. Earth dist.	1972 Mar 23 18:11	0° $\underline{\Omega}$ 38'25	30.31757 AU
opposition	1964 Mar 03 11:46	12° \mp 56'03	14°17'12	direct	1972 Apr 17 07:43	30° $\mathcal{R}\Omega$	
min. Earth dist.	1964 Mar 06 07:46	12° \mp 51'34	31.90697 AU		1972 Jun 09 05:44	29° \mp 18'42	
direct	1964 May 22 21:29	11° \mp 35'23			1972 Jul 30 11:44	0° $\underline{\Omega}$	
max. Earth dist.	1964 Sep 03 11:36	13° \mp 52'35	33.73799 AU	max. Earth dist.	1972 Sep 22 03:02	1° $\underline{\Omega}$ 47'54	32.14958 AU

conjunction	1972 Sep 24 21:12	1°♂54'11	15°50'32	opposition	1981 Apr 12 23:39	22°♂57'56	17°41'48
minimum elong	1972 Sep 24 20:54	1°♂54'09	15°50'32	min. Earth dist.	1981 Apr 14 18:35	22°♂54'55	29.10531 AU
retrograde	1973 Jan 06 06:56	4°♂25'37		direct	1981 Jul 01 16:12	21°♂32'02	
opposition	1973 Mar 23 20:40	3°♂04'39	16°58'50	max. Earth dist.	1981 Oct 15 21:34	24°♂11'48	30.97100 AU
min. Earth dist.	1973 Mar 26 08:50	3°♂00'30	30.14611 AU				
direct	1973 Jun 11 20:11	1°♂40'25		conjunction	1981 Oct 17 17:57	24°♂16'15	16°33'03
max. Earth dist.	1973 Sep 24 21:29	4°♂11'01	31.98023 AU	minimum elong	1981 Oct 17 17:58	24°♂16'15	16°33'04
				retrograde	1982 Jan 29 08:18	26°♂55'53	
conjunction	1973 Sep 27 13:15	4°♂17'07	16°01'47	opposition	1982 Apr 15 20:51	25°♂32'57	17°38'39
minimum elong	1973 Sep 27 12:59	4°♂17'06	16°01'48	min. Earth dist.	1982 Apr 17 14:25	25°♂30'01	29.01702 AU
retrograde	1974 Jan 09 00:53	6°♂49'42		direct	1982 Jul 04 13:11	24°♂06'57	
opposition	1974 Mar 26 12:31	5°♂28'23	17°10'23	max. Earth dist.	1982 Oct 18 20:01	26°♂47'24	30.88811 AU
min. Earth dist.	1974 Mar 28 21:57	5°♂24'24	29.98295 AU				
direct	1974 Jun 14 13:17	4°♂03'48		conjunction	1982 Oct 20 14:16	26°♂51'39	16°28'57
max. Earth dist.	1974 Sep 27 15:38	6°♂35'43	31.81972 AU	minimum elong	1982 Oct 20 14:18	26°♂51'39	16°28'57
				retrograde	1983 Feb 01 05:53	29°♂31'46	
conjunction	1974 Sep 30 05:51	6°♂41'42	16°11'34	opposition	1983 Apr 18 18:16	28°♂08'43	17°33'29
minimum elong	1974 Sep 30 05:36	6°♂41'41	16°11'33	min. Earth dist.	1983 Apr 20 08:25	28°♂06'01	28.93800 AU
retrograde	1975 Jan 11 17:39	9°♂15'24		direct	1983 Jul 07 11:25	26°♂42'38	
opposition	1975 Mar 29 05:13	7°♂53'45	17°20'18	max. Earth dist.	1983 Oct 21 19:30	29°♂23'43	30.81483 AU
min. Earth dist.	1975 Mar 31 13:37	7°♂49'50	29.82887 AU				
direct	1975 Jun 17 04:03	6°♂28'52		conjunction	1983 Oct 23 10:55	29°♂27'42	16°22'59
max. Earth dist.	1975 Sep 30 12:13	9°♂02'10	31.66890 AU	minimum elong	1983 Oct 23 11:02	29°♂27'42	16°22'59
					1983 Nov 05 21:09	0°♂	
conjunction	1975 Oct 02 23:13	9°♂07'54	16°19'46	retrograde	1984 Feb 04 02:06	2°♂08'12	
minimum elong	1975 Oct 02 23:01	9°♂07'53	16°19'46	opposition	1984 Apr 20 16:05	0°♂45'01	17°26'17
retrograde	1976 Jan 14 11:41	11°♂42'38		min. Earth dist.	1984 Apr 22 04:52	0°♂42'25	28.86858 AU
opposition	1976 Mar 30 22:31	10°♂20'43	17°28'31		1984 May 18 14:32	30°♂♂	
min. Earth dist.	1976 Apr 02 04:11	10°♂16'59	29.68431 AU	direct	1984 Jul 09 08:22	29°♂18'52	
direct	1976 Jun 18 21:43	8°♂55'35			1984 Aug 28 04:46	0°♂	
max. Earth dist.	1976 Oct 02 07:28	11°♂30'04	31.52812 AU	max. Earth dist.	1984 Oct 23 19:13	2°♂00'30	30.75189 AU
conjunction	1976 Oct 04 17:06	11°♂35'41	16°26'20	conjunction	1984 Oct 25 07:35	2°♂04'10	16°15'07
minimum elong	1976 Oct 04 16:55	11°♂35'40	16°26'20	minimum elong	1984 Oct 25 07:42	2°♂04'11	16°15'07
retrograde	1977 Jan 16 07:05	14°♂11'26		retrograde	1985 Feb 05 23:58	4°♂44'55	
opposition	1977 Apr 02 16:40	12°♂49'18	17°34'56	opposition	1985 Apr 23 14:06	3°♂21'38	17°17'03
min. Earth dist.	1977 Apr 04 20:35	12°♂45'40	29.54970 AU	min. Earth dist.	1985 Apr 24 23:11	3°♂19'18	28.80932 AU
direct	1977 Jun 21 13:21	11°♂23'56		direct	1985 Jul 12 08:41	1°♂55'27	
max. Earth dist.	1977 Oct 05 05:29	13°♂59'45	31.39744 AU	max. Earth dist.	1985 Oct 26 18:32	4°♂37'28	30.69964 AU
conjunction	1977 Oct 07 11:28	14°♂05'03	16°31'13	conjunction	1985 Oct 28 04:04	4°♂40'51	16°05'22
minimum elong	1977 Oct 07 11:21	14°♂05'03	16°31'13	minimum elong	1985 Oct 28 04:15	4°♂40'53	16°05'22
retrograde	1978 Jan 19 00:46	16°♂41'45		retrograde	1986 Feb 08 20:16	7°♂21'46	
opposition	1978 Apr 05 11:32	15°♂19'25	17°39'31	opposition	1986 Apr 26 12:20	5°♂58'24	17°05'45
min. Earth dist.	1978 Apr 07 13:12	15°♂15'56	29.42467 AU	min. Earth dist.	1986 Apr 27 19:23	5°♂56'12	28.76097 AU
direct	1978 Jun 24 07:42	13°♂53'53		direct	1986 Jul 15 06:32	4°♂32'11	
max. Earth dist.	1978 Oct 08 01:45	16°♂30'43	31.27664 AU	max. Earth dist.	1986 Oct 29 19:00	7°♂14'35	30.65901 AU
conjunction	1978 Oct 10 06:21	16°♂35'56	16°34'22	conjunction	1986 Oct 31 00:38	7°♂17'35	15°53'42
minimum elong	1978 Oct 10 06:15	16°♂35'55	16°34'21	minimum elong	1986 Oct 31 00:49	7°♂17'36	15°53'41
retrograde	1979 Jan 21 20:46	19°♂13'29		retrograde	1987 Feb 11 16:56	9°♂58'31	
opposition	1979 Apr 08 06:50	17°♂50'59	17°42'12	opposition	1987 Apr 29 10:26	8°♂35'07	16°52'24
min. Earth dist.	1979 Apr 10 06:16	17°♂47'39	29.30916 AU	min. Earth dist.	1987 Apr 30 13:43	8°♂33'11	28.72410 AU
direct	1979 Jun 27 01:26	16°♂25'18		direct	1987 Jul 18 06:11	7°♂08'56	
max. Earth dist.	1979 Oct 11 00:46	19°♂03'18	31.16537 AU				
				conjunction	1987 Nov 02 21:02	9°♂54'12	15°40'08
conjunction	1979 Oct 13 01:56	19°♂08'12	16°35'44	minimum elong	1987 Nov 02 21:16	9°♂54'14	15°40'08
minimum elong	1979 Oct 13 01:53	19°♂08'11	16°35'45	max. Earth dist.	1987 Nov 01 18:00	9°♂51'28	30.63046 AU
retrograde	1980 Jan 24 15:49	21°♂46'33		retrograde	1988 Feb 14 14:51	12°♂35'06	
opposition	1980 Apr 10 03:02	20°♂23'53	17°42'59	opposition	1988 May 01 08:47	11°♂11'40	16°37'00
min. Earth dist.	1980 Apr 12 00:56	20°♂20'39	29.20268 AU	min. Earth dist.	1988 May 02 09:08	11°♂09'57	28.69943 AU
direct	1980 Jun 28 20:09	18°♂58'05		direct	1988 Jul 20 04:21	9°♂45'33	
max. Earth dist.	1980 Oct 12 22:08	21°♂36'56	31.06352 AU				
				conjunction	1988 Nov 04 17:16	12°♂30'36	15°24'42
conjunction	1980 Oct 14 21:40	21°♂41'41	16°35'18	minimum elong	1988 Nov 04 17:31	12°♂30'38	15°24'42
minimum elong	1980 Oct 14 21:38	21°♂41'41	16°35'18	max. Earth dist.	1988 Nov 03 18:43	12°♂28'19	30.61457 AU
retrograde	1981 Jan 26 12:51	24°♂20'44			1989 Jan 22 07:01	15°♂	

retrograde	1989 Feb 16 09:47	15°♌11'22		conjunction	1996 Nov 24 23:56	2°♏59'41	12°21'36	
	1989 Mar 14 00:18	15°♌		minimum elong	1996 Nov 25 00:20	2°♏59'43	12°21'37	
	1989 May 04 07:11	13°♌47'59	16°19'35	max. Earth dist.	1996 Nov 25 02:36	2°♏59'57	30.90324 AU	
	1989 May 05 04:03	13°♌46'30	28.68702 AU	retrograde	1997 Mar 08 12:54	5°♏36'10		
	1989 Jul 23 03:55	12°♌22'00		opposition	1997 May 25 09:59	4°♏13'51	12°57'12	
direct	1989 Nov 04 18:54	15°♌		min. Earth dist.	1997 May 25 06:41	4°♏14'05	28.99062 AU	
				direct	1997 Aug 13 08:32	2°♏49'40		
	1989 Nov 07 13:14	15°♌06'43	15°07'26					
	minimum elong	1989 Nov 07 13:32	15°♌06'45	15°07'27	conjunction	1997 Nov 27 16:35	5°♏28'14	11°52'32
	max. Earth dist.	1989 Nov 06 17:13	15°♌04'41	30.61125 AU	minimum elong	1997 Nov 27 16:59	5°♏28'17	11°52'32
retrograde	1990 Feb 19 06:31	17°♌47'15		max. Earth dist.	1997 Nov 27 22:35	5°♏28'50	30.98589 AU	
opposition	1990 May 07 05:17	16°♌23'56	16°00'13	retrograde	1998 Mar 11 04:55	8°♏03'48		
min. Earth dist.	1990 May 07 22:41	16°♌22'43	28.68696 AU	opposition	1998 May 28 05:15	6°♏41'41	12°25'26	
direct	1990 Jul 15 09:46	15°♌		min. Earth dist.	1998 May 27 22:20	6°♏42'10	29.07438 AU	
	1990 Jul 26 01:26	14°♌58'07		direct	1998 Aug 16 06:09	5°♏17'46		
	1990 Aug 05 12:29	15°♌						
				conjunction	1998 Nov 30 08:26	7°♏55'12	11°22'22	
	conjunction	1990 Nov 10 09:05	17°♌42'25	14°48'24	minimum elong	1998 Nov 30 08:50	7°♏55'14	11°22'23
minimum elong	1990 Nov 10 09:23	17°♌42'27	14°48'25	max. Earth dist.	1998 Nov 30 17:01	7°♏56'02	31.07869 AU	
max. Earth dist.	1990 Nov 09 17:35	17°♌40'51	30.62022 AU	retrograde	1999 Mar 13 21:34	10°♏29'49		
retrograde	1991 Feb 22 01:28	20°♌22'38		opposition	1999 May 31 00:06	9°♏07'53	11°52'32	
opposition	1991 May 10 03:25	18°♌59'26	15°38'58	min. Earth dist.	1999 May 30 14:16	9°♏08'33	29.16873 AU	
min. Earth dist.	1991 May 10 18:10	18°♌58'24	28.69854 AU	direct	1999 Aug 19 01:46	7°♏44'16		
direct	1991 Jul 28 23:48	17°♌33'48						
conjunction				conjunction	1999 Dec 02 23:39	10°♏20'30	10°51'13	
	1991 Nov 13 04:30	20°♌17'34	14°27'40	minimum elong	1999 Dec 03 00:02	10°♏20'32	10°51'12	
	minimum elong	1991 Nov 13 04:51	20°♌17'36	14°27'40	max. Earth dist.	1999 Dec 03 12:17	10°♏21'44	31.18222 AU
	max. Earth dist.	1991 Nov 12 15:19	20°♌16'15	30.64086 AU	retrograde	2000 Mar 15 11:51	12°♏54'08	
	retrograde	1992 Feb 24 21:33	22°♌57'24		opposition	2000 Jun 01 18:18	11°♏32'25	11°18'38
opposition	1992 May 12 01:14	21°♌34'19	15°15'56	min. Earth dist.	2000 Jun 01 05:17	11°♏33'18	29.27385 AU	
min. Earth dist.	1992 May 12 12:06	21°♌33'34	28.72144 AU	direct	2000 Aug 20 22:43	10°♏09'08		
direct	1992 Jul 30 21:35	20°♌08'54						
conjunction				conjunction	2000 Dec 04 14:05	12°♏44'09	10°19'09	
	1992 Nov 14 23:47	22°♌52'03	14°05'20	minimum elong	2000 Dec 04 14:27	12°♏44'11	10°19'09	
	minimum elong	1992 Nov 15 00:07	22°♌52'05	14°05'20	max. Earth dist.	2000 Dec 05 05:05	12°♏45'36	31.29667 AU
	max. Earth dist.	1992 Nov 14 14:45	22°♌51'08	30.67264 AU	retrograde	2001 Mar 18 02:38	15°♏16'46	
	retrograde	1993 Feb 26 14:30	25°♌31'22		opposition	2001 Jun 04 11:51	13°♏55'18	10°43'48
opposition	1993 May 14 23:04	24°♌08'26	14°51'11	min. Earth dist.	2001 Jun 03 19:02	13°♏56'26	29.39021 AU	
min. Earth dist.	1993 May 15 07:46	24°♌07'50	28.75508 AU	direct	2001 Aug 23 16:07	12°♏32'22		
direct	1993 Aug 02 19:29	22°♌43'15						
conjunction				conjunction	2001 Dec 07 03:55	15°♏06'10	9°46'17	
	1993 Nov 17 18:25	25°♌25'39	13°41'28	minimum elong	2001 Dec 07 04:17	15°♏06'12	9°46'16	
	minimum elong	1993 Nov 17 18:48	25°♌25'41	13°41'27	max. Earth dist.	2001 Dec 07 23:13	15°♏08'01	31.42211 AU
	max. Earth dist.	1993 Nov 17 11:44	25°♌24'59	30.71519 AU	retrograde	2002 Mar 20 14:55	17°♏37'44	
	retrograde	1994 Mar 01 10:01	28°♌04'23		min. Earth dist.	2002 Jun 06 09:24	16°♏17'52	29.51729 AU
opposition	1994 May 17 20:22	26°♌41'37	14°24'51	opposition	2002 Jun 07 04:44	16°♏16'34	10°08'10	
min. Earth dist.	1994 May 18 01:04	26°♌41'17	28.79910 AU	direct	2002 Aug 26 11:01	14°♏54'02		
direct	1994 Aug 05 17:07	25°♌16'40						
conjunction				conjunction	2002 Dec 09 16:57	17°♏26'34	9°12'43	
	1994 Nov 20 12:52	27°♌58'14	13°16'10	minimum elong	2002 Dec 09 17:18	17°♏26'36	9°12'43	
	minimum elong	1994 Nov 20 13:14	27°♌58'16	13°16'10	max. Earth dist.	2002 Dec 10 14:13	17°♏28'36	31.55797 AU
	max. Earth dist.	1994 Nov 20 09:45	27°♌57'55	30.76790 AU	retrograde	2003 Mar 23 05:13	19°♏57'04	
	retrograde	1995 Jan 17 09:16	0°♏		opposition	2003 Jun 09 20:44	18°♏36'14	9°31'50
opposition	1995 Mar 04 02:34	0°♏36'18		min. Earth dist.	2003 Jun 08 21:27	18°♏37'47	29.65467 AU	
min. Earth dist.	1995 Apr 21 02:56	30°♌		direct	2003 Aug 29 03:34	17°♏14'07		
direct	1995 May 20 17:19	29°♌13'41	13°57'01					
conjunction	1995 May 20 20:11	29°♌13'29	28.85310 AU	conjunction	2003 Dec 12 05:28	19°♏45'22	8°38'33	
	1995 Aug 08 13:34	27°♌48'59		minimum elong	2003 Dec 12 05:49	19°♏45'24	8°38'32	
	1995 Nov 10 19:12	0°♏		max. Earth dist.	2003 Dec 13 06:37	19°♏47'46	31.70357 AU	
				retrograde	2004 Mar 24 15:08	22°♏14'48		
	conjunction	1995 Nov 23 06:45	0°♏29'38	12°49'31	min. Earth dist.	2004 Jun 10 11:19	20°♏55'58	29.80158 AU
minimum elong	1995 Nov 23 07:09	0°♏29'40	12°49'30	opposition	2004 Jun 11 12:26	20°♏54'18	8°54'57	
max. Earth dist.	1995 Nov 23 06:19	0°♏29'35	30.83070 AU	direct	2004 Aug 30 19:38	19°♏32'37		
retrograde	1996 Mar 05 20:18	3°♏06'56						
opposition	1996 May 22 13:50	1°♏44'29	13°27'46	conjunction	2004 Dec 13 17:05	22°♏02'33	8°03'54	
min. Earth dist.	1996 May 22 12:47	1°♏44'33	28.91690 AU	minimum elong	2004 Dec 13 17:23	22°♏02'35	8°03'54	
direct	1996 Aug 10 12:35	0°♏20'02		max. Earth dist.	2004 Dec 14 20:12	22°♏05'07	31.85819 AU	

retrograde	2005 Mar 27 02:29	24° ♂ 30'53		retrograde	2013 Apr 12 19:34	11° ♂ 35'11	
min. Earth dist.	2005 Jun 12 22:27	23° ♂ 12'38	29.95722 AU	min. Earth dist.	2013 Jun 30 01:54	10° ♂ 20'25	31.44910 AU
opposition	2005 Jun 14 03:15	23° ♂ 10'44	8°17'36	opposition	2013 Jul 02 00:05	10° ♂ 17'30	3°13'41
direct	2005 Sep 02 10:52	21° ♂ 49'28		direct	2013 Sep 20 15:29	8° ♂ 59'23	
conjunction	2005 Dec 16 04:12	24° ♂ 18'06	7°28'51	conjunction	2014 Jan 01 18:57	11° ♂ 17'04	2°44'29
minimum elong	2005 Dec 16 04:30	24° ♂ 18'08	7°28'51	minimum elong	2014 Jan 01 19:03	11° ♂ 17'05	2°44'29
max. Earth dist.	2005 Dec 17 10:26	24° ♂ 20'56	32.02085 AU	max. Earth dist.	2014 Jan 03 18:10	11° ♂ 21'13	33.55495 AU
retrograde	2006 Mar 29 12:40	26° ♂ 45'19		retrograde	2014 Apr 14 23:47	13° ♂ 34'49	
min. Earth dist.	2006 Jun 15 11:00	25° ♂ 27'29	30.12085 AU	min. Earth dist.	2014 Jul 02 06:43	12° ♂ 20'33	31.66483 AU
opposition	2006 Jun 16 17:24	25° ♂ 25'29	7°39'53	opposition	2014 Jul 04 08:03	12° ♂ 17'28	2°36'13
direct	2006 Sep 04 23:21	24° ♂ 04'39		direct	2014 Sep 23 00:36	10° ♂ 59'45	
conjunction	2006 Dec 18 14:40	26° ♂ 31'57	6°53'31	conjunction	2015 Jan 03 23:34	13° ♂ 16'08	2°09'27
minimum elong	2006 Dec 18 14:56	26° ♂ 31'58	6°53'31	minimum elong	2015 Jan 03 23:39	13° ♂ 16'09	2°09'28
max. Earth dist.	2006 Dec 19 23:02	26° ♂ 34'57	32.19095 AU	max. Earth dist.	2015 Jan 06 01:16	13° ♂ 20'29	33.77477 AU
retrograde	2007 Mar 31 22:45	28° ♂ 58'01		retrograde	2015 Apr 17 03:54	15° ♂ 32'46	
min. Earth dist.	2007 Jun 17 21:23	27° ♂ 40'42	30.29156 AU	min. Earth dist.	2015 Jul 04 12:52	14° ♂ 18'55	31.88679 AU
opposition	2007 Jun 19 06:49	27° ♂ 38'32	7°01'56	opposition	2015 Jul 06 15:38	14° ♂ 15'45	1°59'03
direct	2007 Sep 07 14:55	26° ♂ 18'07		direct	2015 Sep 25 06:58	12° ♂ 58'29	
conjunction	2007 Dec 21 00:17	28° ♂ 44'02	6°17'58	conjunction	2016 Jan 06 03:28	15° ♂ 13'35	1°34'43
minimum elong	2007 Dec 21 00:32	28° ♂ 44'04	6°17'58	minimum elong	2016 Jan 06 03:32	15° ♂ 13'35	1°34'43
max. Earth dist.	2007 Dec 22 10:39	28° ♂ 47'13	32.36754 AU	max. Earth dist.	2016 Jan 08 07:11	15° ♂ 18'04	34.00031 AU
retrograde	2008 Jan 26 02:38	0° ♂		retrograde	2016 Apr 18 07:26	17° ♂ 29'06	
min. Earth dist.	2008 Apr 02 09:23	1° ♂ 08'57		min. Earth dist.	2016 Jul 05 17:20	16° ♂ 15'45	32.11415 AU
opposition	2008 Jun 14 05:12	30° ♂		opposition	2016 Jul 07 22:27	16° ♂ 12'28	1°22'17
direct	2008 Jun 19 08:16	29° ♂ 52'04	30.46892 AU	direct	2016 Sep 26 15:02	14° ♂ 55'38	
opposition	2008 Jun 20 19:42	29° ♂ 49'46	6°23'50	conjunction	2017 Jan 07 06:45	17° ♂ 09'28	1°00'21
direct	2008 Sep 09 03:14	28° ♂ 29'46		minimum elong	2017 Jan 07 06:47	17° ♂ 09'29	1°00'22
conjunction	2008 Nov 27 01:04	0° ♂		max. Earth dist.	2017 Jan 09 11:46	17° ♂ 14'02	34.23065 AU
minimum elong	2008 Dec 22 09:23	0° ♂ 54'19	5°42'18	retrograde	2017 Apr 20 12:49	19° ♂ 23'55	
max. Earth dist.	2008 Dec 22 09:37	0° ♂ 54'20	5°42'19	min. Earth dist.	2017 Jul 07 21:41	18° ♂ 11'00	32.34638 AU
retrograde	2008 Dec 23 22:22	0° ♂ 57'42	32.55039 AU	opposition	2017 Jul 10 04:35	18° ♂ 07'38	0°45'56
min. Earth dist.	2009 Apr 04 17:35	3° ♂ 18'02		direct	2017 Sep 28 19:36	16° ♂ 51'15	
opposition	2009 Jun 21 18:12	2° ♂ 01'35	30.65236 AU	conjunction	2018 Jan 09 09:33	19° ♂ 03'52	0°26'23
direct	2009 Jun 23 07:42	1° ♂ 59'10	5°45'39	minimum elong	2018 Jan 09 09:34	19° ♂ 03'52	0°26'22
conjunction	2009 Sep 11 16:57	0° ♂ 39'32		max. Earth dist.	2018 Jan 11 16:54	19° ♂ 08'35	34.46516 AU
minimum elong	2009 Dec 24 17:32	3° ♂ 02'42	5°06'35	retrograde	2018 Apr 22 15:26	21° ♂ 17'14	
max. Earth dist.	2009 Dec 24 17:44	3° ♂ 02'44	5°06'34	min. Earth dist.	2018 Jul 10 02:13	20° ♂ 04'44	32.58234 AU
retrograde	2009 Dec 26 07:47	3° ♂ 06'11	32.73900 AU	opposition	2018 Jul 12 10:04	20° ♂ 01'20	0°10'04
min. Earth dist.	2010 Apr 07 02:34	5° ♂ 25'13		direct	2018 Oct 01 02:03	18° ♂ 45'22	
opposition	2010 Jun 24 02:47	4° ♂ 09'12	30.84193 AU	desc. node	2018 Oct 24 10:19	18° ♂ 53'30	
direct	2010 Jun 25 18:55	4° ♂ 06'38	5°07'29	conjunction	2019 Jan 11 11:38	20° ♂ 56'48	0°-7'-14
conjunction	2010 Sep 14 04:36	2° ♂ 47'23		minimum elong	2019 Jan 11 11:38	20° ♂ 56'48	0°07'15
minimum elong	2010 Dec 27 01:04	5° ♂ 09'10	4°30'53	behind sun begin	2019 Jan 11 05:46	20° ♂ 56'20	
max. Earth dist.	2010 Dec 27 01:15	5° ♂ 09'11	4°30'53	behind sun end	2019 Jan 11 17:30	20° ♂ 57'16	
retrograde	2010 Dec 28 18:29	5° ♂ 12'54	32.93350 AU	max. Earth dist.	2019 Jan 13 19:23	21° ♂ 01'30	34.70279 AU
min. Earth dist.	2011 Apr 09 08:50	7° ♂ 30'27		retrograde	2019 Apr 24 18:48	23° ♂ 09'06	
opposition	2011 Jun 26 11:45	6° ♂ 14'49	31.03762 AU	min. Earth dist.	2019 Jul 12 04:46	21° ♂ 57'05	32.82141 AU
direct	2011 Jun 28 05:19	6° ♂ 12'10	4°29'24	opposition	2019 Jul 14 14:51	21° ♂ 53'34	0°-25'-17
conjunction	2011 Sep 16 18:24	4° ♂ 53'17		direct	2019 Oct 03 06:39	20° ♂ 38'01	
minimum elong	2011 Dec 29 07:43	7° ♂ 13'40	3°55'15	conjunction	2020 Jan 13 13:20	22° ♂ 48'16	0°-40'-16
max. Earth dist.	2011 Dec 29 07:52	7° ♂ 13'41	3°55'15	minimum elong	2020 Jan 13 13:19	22° ♂ 48'16	0°40'17
retrograde	2011 Dec 31 02:18	7° ♂ 17'29	33.13415 AU	max. Earth dist.	2020 Jan 15 23:22	22° ♂ 53'08	34.94290 AU
min. Earth dist.	2012 Apr 10 16:24	9° ♂ 33'46		retrograde	2020 Apr 25 18:54	24° ♂ 59'32	
opposition	2012 Jun 27 18:05	8° ♂ 18'36	31.23998 AU	min. Earth dist.	2020 Jul 13 08:54	23° ♂ 47'51	33.06278 AU
direct	2012 Jun 29 15:02	8° ♂ 15'46	3°51'26	opposition	2020 Jul 15 19:12	23° ♂ 44'19	-1°00'-6
conjunction	2012 Sep 18 05:07	6° ♂ 57'15		direct	2020 Oct 04 13:32	22° ♂ 29'12	
minimum elong	2012 Dec 30 13:38	9° ♂ 16'17	3°19'46	conjunction	2021 Jan 14 14:19	24° ♂ 38'16	-1°-12'-50
max. Earth dist.	2012 Dec 30 13:46	9° ♂ 16'17	3°19'47	minimum elong	2021 Jan 14 14:16	24° ♂ 38'16	1°12'51
	2013 Jan 01 11:27	9° ♂ 20'20	33.34125 AU	max. Earth dist.	2021 Jan 17 00:28	24° ♂ 43'06	35.18491 AU

retrograde	2021 Apr 27 20:02	26°  48'29		minimum elong	2029 Jan 28 01:23	8°  24'43	5°13'12
min. Earth dist.	2021 Jul 15 10:21	25°  37'14	33.30593 AU	max. Earth dist.	2029 Jan 30 21:20	8°  30'02	37.18751 AU
opposition	2021 Jul 17 22:46	25°  33'36	-1°-34'-21	retrograde	2029 May 11 04:17	10°  27'10	
direct	2021 Oct 06 18:29	24°  18'51		min. Earth dist.	2029 Jul 29 08:11	9°  18'38	35.32536 AU
				opposition	2029 Aug 01 04:56	9°  14'40	-5°-45'-30
conjunction	2022 Jan 16 14:50	26°  26'45	-1°-44'-54	direct	2029 Oct 21 03:53	8°  02'44	
minimum elong	2022 Jan 16 14:47	26°  26'45	1°44'56				
max. Earth dist.	2022 Jan 19 02:32	26°  31'41	35.42827 AU	conjunction	2030 Jan 29 21:46	10°  02'04	-5°-40'-27
retrograde	2022 Apr 29 18:36	28°  35'56		minimum elong	2030 Jan 29 21:36	10°  02'04	5°40'28
min. Earth dist.	2022 Jul 17 13:06	27°  24'59	33.55066 AU	max. Earth dist.	2030 Feb 01 18:15	10°  07'24	37.44636 AU
opposition	2022 Jul 20 01:38	27°  21'21	-2°-8'-1	retrograde	2030 May 12 23:12	12°  03'39	
direct	2022 Oct 08 21:56	26°  06'58		min. Earth dist.	2030 Jul 31 05:12	10°  55'28	35.58602 AU
				opposition	2030 Aug 03 02:58	10°  51'28	-6°-13'-51
conjunction	2023 Jan 18 14:44	28°  13'42	-2°-16'-26	direct	2030 Oct 23 03:05	9°  39'53	
minimum elong	2023 Jan 18 14:39	28°  13'41	2°16'26				
max. Earth dist.	2023 Jan 21 03:21	28°  18'40	35.67316 AU	conjunction	2031 Jan 31 17:27	11°  38'17	-6°-7'-6
	2023 Mar 23 12:23	0°  00'		minimum elong	2031 Jan 31 17:16	11°  38'16	6°07'07
retrograde	2023 May 01 17:08	0°  21'51		max. Earth dist.	2031 Feb 03 14:10	11°  43'36	37.70544 AU
	2023 Jun 11 09:35	30°  00'		retrograde	2031 May 14 20:27	13°  39'01	
min. Earth dist.	2023 Jul 19 13:41	29°  11'16	33.79703 AU	min. Earth dist.	2031 Aug 02 02:23	12°  31'09	35.84689 AU
opposition	2023 Jul 22 03:52	29°  07'34	-2°-41'-4	opposition	2031 Aug 05 00:51	12°  27'08	-6°-41'-29
direct	2023 Oct 11 01:10	27°  53'31		direct	2031 Oct 24 23:13	11°  15'55	
conjunction	2024 Jan 20 13:46	29°  59'05	-2°-47'-24	conjunction	2032 Feb 02 12:46	13°  13'22	-6°-33'-6
minimum elong	2024 Jan 20 13:40	29°  59'05	2°47'25	minimum elong	2032 Feb 02 12:35	13°  13'21	6°33'07
	2024 Jan 21 00:56	0°  00'		max. Earth dist.	2032 Feb 05 10:50	13°  18'45	37.96425 AU
max. Earth dist.	2024 Jan 23 03:20	0°  04'06	35.91969 AU		2032 Apr 14 03:55	15°  00'	
retrograde	2024 May 02 17:46	2°  06'14		retrograde	2032 May 15 15:53	15°  13'17	
min. Earth dist.	2024 Jul 20 14:10	0°  55'58	34.04569 AU		2032 Jun 16 22:25	15°  00'	
opposition	2024 Jul 23 05:37	0°  52'14	-3°-13'-29	min. Earth dist.	2032 Aug 02 23:53	14°  05'41	36.10706 AU
	2024 Sep 01 23:57	30°  00'		opposition	2032 Aug 05 22:12	14°  01'41	-7°-8'-26
direct	2024 Oct 12 00:33	29°  38'31		direct	2032 Oct 25 21:09	12°  50'48	
	2024 Nov 19 20:40	0°  00'					
				conjunction	2033 Feb 03 07:42	14°  47'21	-6°-58'-29
conjunction	2025 Jan 21 12:29	1°  42'58	-3°-17'-46	minimum elong	2033 Feb 03 07:31	14°  47'20	6°58'29
minimum elong	2025 Jan 21 12:22	1°  42'58	3°17'47	max. Earth dist.	2033 Feb 06 05:00	14°  52'38	38.22205 AU
max. Earth dist.	2025 Jan 24 03:59	1°  48'06	36.16855 AU		2033 Feb 10 05:59	15°  00'	
retrograde	2025 May 04 15:26	3°  49'07		retrograde	2033 May 17 12:59	16°  46'25	
min. Earth dist.	2025 Jul 22 14:17	2°  39'10	34.29681 AU	min. Earth dist.	2033 Aug 04 19:29	15°  39'08	36.36616 AU
opposition	2025 Jul 25 06:33	2°  35'24	-3°-45'-15	opposition	2033 Aug 07 18:55	15°  35'06	-7°-34'-43
direct	2025 Oct 14 02:53	1°  22'01			2033 Sep 03 19:38	15°  00'	
				direct	2033 Oct 27 16:40	14°  24'31	
conjunction	2026 Jan 23 10:28	3°  25'24	-3°-47'-33		2033 Dec 18 08:11	15°  00'	
minimum elong	2026 Jan 23 10:20	3°  25'23	3°47'35				
max. Earth dist.	2026 Jan 26 02:12	3°  30'30	36.41989 AU	conjunction	2034 Feb 05 02:19	16°  20'11	-7°-23'-14
retrograde	2026 May 06 15:34	5°  30'34		minimum elong	2034 Feb 05 02:07	16°  20'10	7°23'14
min. Earth dist.	2026 Jul 24 12:35	4°  21'01	34.55068 AU	max. Earth dist.	2034 Feb 08 00:47	16°  25'31	38.47845 AU
opposition	2026 Jul 27 06:55	4°  17'08	-4°-16'-21	retrograde	2034 May 19 06:59	18°  18'26	
direct	2026 Oct 16 02:39	3°  04'07		min. Earth dist.	2034 Aug 06 16:43	17°  11'21	36.62378 AU
				opposition	2034 Aug 09 15:18	17°  07'23	-8°00'-18
conjunction	2027 Jan 25 08:01	5°  06'27	-4°-16'-43	direct	2034 Oct 29 13:42	15°  57'06	
minimum elong	2027 Jan 25 07:53	5°  06'26	4°16'44				
max. Earth dist.	2027 Jan 28 02:02	5°  11'41	36.67370 AU	conjunction	2035 Feb 06 20:18	17°  51'52	-7°-47'-21
retrograde	2027 May 08 12:56	7°  10'41		minimum elong	2035 Feb 06 20:06	17°  51'51	7°47'22
min. Earth dist.	2027 Jul 26 12:15	6°  01'26	34.80697 AU	max. Earth dist.	2035 Feb 09 18:25	17°  57'08	38.73345 AU
opposition	2027 Jul 29 06:47	5°  57'33	-4°-46'-45	retrograde	2035 May 20 23:00	19°  49'17	
direct	2027 Oct 18 03:50	4°  44'54		min. Earth dist.	2035 Aug 08 11:10	18°  42'31	36.88010 AU
				opposition	2035 Aug 11 11:03	18°  38'29	-8°-25'-13
conjunction	2028 Jan 27 05:02	6°  46'12	-4°-45'-16	direct	2035 Oct 31 11:34	17°  28'29	
minimum elong	2028 Jan 27 04:53	6°  46'11	4°45'17				
max. Earth dist.	2028 Jan 29 23:18	6°  51'26	36.92979 AU	conjunction	2036 Feb 08 13:52	19°  22'22	-8°-10'-50
retrograde	2028 May 09 09:33	8°  49'31		minimum elong	2036 Feb 08 13:40	19°  22'21	8°10'51
min. Earth dist.	2028 Jul 27 09:21	7°  40'41	35.06540 AU	max. Earth dist.	2036 Feb 11 12:37	19°  27'39	38.98730 AU
opposition	2028 Jul 30 06:03	7°  36'43	-5°-16'-29	retrograde	2036 May 21 15:37	21°  00'	
direct	2028 Oct 19 03:42	6°  24'25		min. Earth dist.	2036 Aug 09 06:48	20°  12'26	37.13580 AU
				opposition	2036 Aug 12 06:30	20°  08'26	-8°-49'-27
conjunction	2029 Jan 28 01:32	8°  24'43	-5°-13'-11	direct	2036 Nov 01 07:53	18°  58'43	

conjunction	2037 Feb 09 07:03	20° 51 '45	-8°-33'-42	conjunction	2045 Feb 20 11:31	2° 14 '03	-11°-14'-3
minimum elong	2037 Feb 09 06:51	20° 51 '44	8°33'44	minimum elong	2045 Feb 20 11:18	2° 14 '02	11°14'05
max. Earth dist.	2037 Feb 12 06:37	20° 57 '04	39.24075 AU	max. Earth dist.	2045 Feb 23 12:20	2° 19 '11	41.25262 AU
retrograde	2037 May 23 07:48	22° 47 '37		retrograde	2045 Jun 03 16:35	4° 04 '33	
min. Earth dist.	2037 Aug 11 01:03	21° 41 '18	37.39115 AU	min. Earth dist.	2045 Aug 22 15:48	3° 00 '20	39.41542 AU
opposition	2037 Aug 14 01:19	21° 37 '17	-9°-13'00	opposition	2045 Aug 25 17:50	2° 56 '22	-11°-57'-23
direct	2037 Nov 03 03:35	20° 27 '51		direct	2045 Nov 14 17:33	1° 49 '18	
conjunction	2038 Feb 10 23:45	22° 20 '03	-8°-55'-55	conjunction	2046 Feb 22 01:54	3° 35 '47	-11°-31'-27
minimum elong	2038 Feb 10 23:32	22° 20 '03	8°55'55	minimum elong	2046 Feb 22 01:42	3° 35 '46	11°31'27
max. Earth dist.	2038 Feb 13 23:06	22° 25 '19	39.49401 AU	max. Earth dist.	2046 Feb 25 03:22	3° 40 '57	41.49544 AU
retrograde	2038 May 25 02:20	24° 15 '11		retrograde	2046 Jun 05 07:25	5° 25 '40	
min. Earth dist.	2038 Aug 12 18:26	23° 09 '09	37.64667 AU	min. Earth dist.	2046 Aug 24 08:38	4° 21 '34	39.65866 AU
opposition	2038 Aug 15 19:38	23° 05 '07	-9°-35'-52	opposition	2046 Aug 27 09:17	4° 17 '41	-12°-15'-8
direct	2038 Nov 04 20:20	21° 55 '58		direct	2046 Nov 16 08:46	3° 10 '51	
conjunction	2039 Feb 12 16:12	23° 47 '23	-9°-17'-30	conjunction	2047 Feb 23 15:52	4° 56 '41	-11°-48'-18
minimum elong	2039 Feb 12 16:00	23° 47 '22	9°17'31	minimum elong	2047 Feb 23 15:40	4° 56 '40	11°48'19
max. Earth dist.	2039 Feb 15 17:10	23° 52 '44	39.74747 AU	max. Earth dist.	2047 Feb 26 16:17	5° 01 '44	41.73498 AU
retrograde	2039 May 26 19:19	25° 41 '47		retrograde	2047 Jun 06 20:52	6° 45 '55	
min. Earth dist.	2039 Aug 14 12:45	24° 36 '00	37.90226 AU	min. Earth dist.	2047 Aug 25 23:03	5° 42 '02	39.89865 AU
opposition	2039 Aug 17 13:41	24° 31 '59	-9°-58'-2	opposition	2047 Aug 29 00:22	5° 38 '08	-12°-32'-19
direct	2039 Nov 06 13:54	23° 23 '09		direct	2047 Nov 17 23:54	4° 31 '31	
conjunction	2040 Feb 14 08:03	25° 13 '48	-9°-38'-27	conjunction	2048 Feb 25 05:20	6° 16 '41	-12°-4'-36
minimum elong	2040 Feb 14 07:50	25° 13 '48	9°38'27	minimum elong	2048 Feb 25 05:09	6° 16 '40	12°04'37
max. Earth dist.	2040 Feb 17 08:30	25° 19 '05	40.00100 AU	max. Earth dist.	2048 Feb 28 05:46	6° 21 '42	41.97139 AU
retrograde	2040 May 27 13:23	27° 07 '31		retrograde	2048 Jun 07 08:18	8° 05 '17	
min. Earth dist.	2040 Aug 15 04:52	26° 02 '04	38.15783 AU	min. Earth dist.	2048 Aug 26 14:54	7° 01 '32	40.13591 AU
opposition	2040 Aug 18 07:17	25° 57 '59	-10°-19'-32	opposition	2048 Aug 29 15:15	6° 57 '42	-12°-48'-54
direct	2040 Nov 07 06:02	24° 49 '27		direct	2048 Nov 18 16:53	5° 51 '18	
conjunction	2041 Feb 14 23:46	26° 39 '23	-9°-58'-46	conjunction	2049 Feb 25 18:44	7° 35 '47	-12°-20'-21
minimum elong	2041 Feb 14 23:33	26° 39 '22	9°58'47	minimum elong	2049 Feb 25 18:32	7° 35 '46	12°20'22
max. Earth dist.	2041 Feb 18 01:22	26° 44 '42	40.25419 AU	max. Earth dist.	2049 Feb 28 19:30	7° 40 '49	42.20543 AU
retrograde	2041 May 29 03:31	28° 32 '26		retrograde	2049 Jun 08 19:14	9° 23 '46	
min. Earth dist.	2041 Aug 16 22:52	27° 27 '12	38.41289 AU	min. Earth dist.	2049 Aug 28 05:03	8° 20 '12	40.37088 AU
opposition	2041 Aug 20 00:28	27° 23 '11	-10°-40'-22	opposition	2049 Aug 31 05:25	8° 16 '22	-13°-4'-55
direct	2041 Nov 09 00:10	26° 14 '57		direct	2049 Nov 20 09:38	7° 10 '10	
conjunction	2042 Feb 16 15:11	28° 04 '11	-10°-18'-29	conjunction	2050 Feb 27 07:38	8° 54 '02	-12°-35'-33
minimum elong	2042 Feb 16 14:58	28° 04 '10	10°18'29	minimum elong	2050 Feb 27 07:27	8° 54 '01	12°35'34
max. Earth dist.	2042 Feb 19 16:46	28° 09 '28	40.50667 AU	max. Earth dist.	2050 Mar 02 07:34	8° 58 '58	42.43746 AU
retrograde	2042 May 30 16:35	29° 56 '34		retrograde	2050 Jun 10 09:58	10° 41 '26	
min. Earth dist.	2042 Aug 18 14:48	28° 51 '39	38.66678 AU	min. Earth dist.	2050 Aug 29 18:43	9° 38 '03	40.60420 AU
opposition	2042 Aug 21 17:14	28° 47 '36	-11°00'-33	opposition	2050 Sep 01 19:28	9° 34 '13	-13°-20'-21
direct	2042 Nov 10 19:20	27° 39 '41		direct	2050 Nov 21 22:12	8° 28 '14	
conjunction	2043 Feb 18 06:05	29° 28 '13	-10°-37'-35	conjunction	2051 Feb 28 20:18	10° 11 '28	-12°-50'-13
minimum elong	2043 Feb 18 05:52	29° 28 '12	10°37'37	minimum elong	2051 Feb 28 20:06	10° 11 '28	12°50'13
max. Earth dist.	2043 Feb 21 07:32	29° 33 '28	40.75758 AU	max. Earth dist.	2051 Mar 03 21:15	10° 16 '27	42.66794 AU
retrograde	2043 Mar 09 01:02	0° 19 '59		retrograde	2051 Jun 11 22:42	11° 58 '19	
min. Earth dist.	2043 Aug 20 07:37	0° 15 '18	38.91899 AU	min. Earth dist.	2051 Aug 31 09:19	10° 55 '05	40.83589 AU
opposition	2043 Aug 23 09:50	0° 11 '17	-11°-20'-7	opposition	2051 Sep 03 09:14	10° 51 '18	-13°-35'-12
direct	2043 Sep 01 03:10	30° 03 '40		direct	2051 Nov 23 12:12	9° 45 '33	
conjunction	2044 Feb 19 21:01	0° 51 '30	-10°-56'-6	conjunction	2052 Mar 01 08:42	11° 28 '12	-13°-4'-19
minimum elong	2044 Feb 19 20:49	0° 51 '30	10°56'07	minimum elong	2052 Mar 01 08:32	11° 28 '11	13°04'20
max. Earth dist.	2044 Feb 22 23:06	0° 56 '46	41.00649 AU	max. Earth dist.	2052 Mar 04 08:45	11° 33 '05	42.89701 AU
retrograde	2044 Jun 01 23:11	2° 42 '39		retrograde	2052 Jun 12 12:10	13° 14 '28	
min. Earth dist.	2044 Aug 21 00:22	1° 38 '11	39.16870 AU	min. Earth dist.	2052 Aug 31 21:45	12° 11 '30	41.06609 AU
opposition	2044 Aug 24 01:59	1° 34 '13	-11°-39'-3	opposition	2052 Sep 03 22:35	12° 07 '41	-13°-49'-29
direct	2044 Nov 13 04:07	0° 26 '53		direct	2052 Nov 23 23:58	11° 02 '10	
conjunction				conjunction	2053 Mar 02 20:52	12° 44 '16	-13°-17'-54
minimum elong				minimum elong	2053 Mar 02 20:41	12° 44 '15	13°17'55
max. Earth dist.				max. Earth dist.	2053 Mar 05 21:25	12° 49 '10	43.12438 AU

retrograde	2053 Jun 14 00:07	14° ✕ 30'01		direct	2061 Dec 05 16:54	22° ✕ 06'16	
min. Earth dist.	2053 Sep 02 12:04	13° ✕ 27'11	41.29443 AU				
opposition	2053 Sep 05 11:49	13° ✕ 23'27	-14°-3'-13	conjunction	2062 Mar 14 01:02	23° ✕ 43'52	-14°-58'-29
direct	2053 Nov 25 13:08	12° ✕ 18'11		minimum elong	2062 Mar 14 00:54	23° ✕ 43'51	14°58'31
				max. Earth dist.	2062 Mar 16 20:16	23° ✕ 48'13	45.02660 AU
conjunction	2054 Mar 04 08:52	13° ✕ 59'44	-13°-30'-57	retrograde	2062 Jun 25 03:48	25° ✕ 25'20	
minimum elong	2054 Mar 04 08:43	13° ✕ 59'44	13°30'59	min. Earth dist.	2062 Sep 14 03:03	24° ✕ 23'53	43.19599 AU
max. Earth dist.	2054 Mar 07 09:14	14° ✕ 04'37	43.34979 AU	opposition	2062 Sep 16 22:12	24° ✕ 20'29	-15°-44'-25
retrograde	2054 Jun 15 10:07	15° ✕ 44'59		direct	2062 Dec 07 01:42	23° ✕ 17'01	
min. Earth dist.	2054 Sep 04 00:32	14° ✕ 42'24	41.52038 AU				
opposition	2054 Sep 07 00:31	14° ✕ 38'39	-14°-16'-24	conjunction	2063 Mar 15 11:03	24° ✕ 54'09	-15°-7'-25
direct	2054 Nov 27 03:40	13° ✕ 33'38		minimum elong	2063 Mar 15 10:57	24° ✕ 54'09	15°07'25
				max. Earth dist.	2063 Mar 18 07:00	24° ✕ 58'32	45.22086 AU
conjunction	2055 Mar 05 20:32	15° ✕ 14'40	-13°-43'-31	retrograde	2063 Jun 26 15:42	26° ✕ 35'11	
minimum elong	2055 Mar 05 20:22	15° ✕ 14'40	13°43'31	min. Earth dist.	2063 Sep 15 14:56	25° ✕ 33'49	43.39058 AU
max. Earth dist.	2055 Mar 08 19:59	15° ✕ 19'27	43.57261 AU	opposition	2063 Sep 18 08:49	25° ✕ 30'29	-15°-53'-19
retrograde	2055 Jun 16 22:46	16° ✕ 59'27		direct	2063 Dec 08 10:31	24° ✕ 27'12	
min. Earth dist.	2055 Sep 05 13:47	15° ✕ 57'03	41.74363 AU				
opposition	2055 Sep 08 13:14	15° ✕ 53'20	-14°-29'-4	conjunction	2064 Mar 15 20:45	26° ✕ 03'54	-15°-15'-53
direct	2055 Nov 28 16:11	14° ✕ 48'34		minimum elong	2064 Mar 15 20:38	26° ✕ 03'53	15°15'54
				max. Earth dist.	2064 Mar 18 15:54	26° ✕ 08'12	45.41307 AU
conjunction	2056 Mar 06 08:07	16° ✕ 29'06	-13°-55'-35	retrograde	2064 Jun 27 00:44	27° ✕ 44'29	
minimum elong	2056 Mar 06 07:58	16° ✕ 29'06	13°55'36	min. Earth dist.	2064 Sep 16 00:29	26° ✕ 43'19	43.58297 AU
max. Earth dist.	2056 Mar 09 08:10	16° ✕ 33'54	43.79237 AU	opposition	2064 Sep 18 19:03	26° ✕ 39'58	-16°-1'-44
retrograde	2056 Jun 17 11:19	18° ✕ 13'25		direct	2064 Dec 08 20:01	25° ✕ 36'51	
min. Earth dist.	2056 Sep 06 03:23	17° ✕ 11'09	41.96327 AU				
opposition	2056 Sep 09 01:38	17° ✕ 07'32	-14°-41'-15	conjunction	2065 Mar 17 06:20	27° ✕ 13'07	-15°-23'-55
direct	2056 Nov 29 04:14	16° ✕ 02'59		minimum elong	2065 Mar 17 06:15	27° ✕ 13'06	15°23'55
				max. Earth dist.	2065 Mar 20 01:01	27° ✕ 17'23	45.60299 AU
conjunction	2057 Mar 07 19:32	17° ✕ 43'02	-14°-7'-10	retrograde	2065 Jun 28 08:18	28° ✕ 53'18	
minimum elong	2057 Mar 07 19:23	17° ✕ 43'01	14°07'10	min. Earth dist.	2065 Sep 17 11:41	27° ✕ 52'14	43.77309 AU
max. Earth dist.	2057 Mar 10 17:51	17° ✕ 47'42	44.00833 AU	opposition	2065 Sep 20 05:04	27° ✕ 48'56	-16°-9'-43
retrograde	2057 Jun 19 01:25	19° ✕ 26'52		direct	2065 Dec 10 07:47	26° ✕ 46'01	
min. Earth dist.	2057 Sep 07 15:11	18° ✕ 24'49	42.17888 AU				
opposition	2057 Sep 10 13:37	18° ✕ 21'12	-14°-52'-56	conjunction	2066 Mar 18 15:51	28° ✕ 21'52	-15°-31'-31
direct	2057 Nov 30 13:43	17° ✕ 16'52		minimum elong	2066 Mar 18 15:45	28° ✕ 21'52	15°31'31
				max. Earth dist.	2066 Mar 21 10:46	28° ✕ 26'08	45.79062 AU
conjunction	2058 Mar 09 06:49	18° ✕ 56'26	-14°-18'-19		2066 Jun 17 15:35	0° ° °	
minimum elong	2058 Mar 09 06:40	18° ✕ 56'25	14°18'21	retrograde	2066 Jun 29 15:14	0° ° ° 01'40	
max. Earth dist.	2058 Mar 12 05:05	19° ✕ 01'04	44.21995 AU		2066 Jul 11 21:44	30° ° ° °	
retrograde	2058 Jun 20 11:41	20° ✕ 39'48		min. Earth dist.	2066 Sep 18 21:53	29° ✕ 00'44	43.96047 AU
min. Earth dist.	2058 Sep 09 05:03	19° ✕ 37'49	42.38998 AU	opposition	2066 Sep 21 14:52	28° ✕ 57'28	-16°-17'-14
opposition	2058 Sep 12 01:35	19° ✕ 34'18	-15°-4'-9	direct	2066 Dec 11 20:17	27° ✕ 54'44	
direct	2058 Dec 02 02:00	18° ✕ 30'11					
				conjunction	2067 Mar 20 00:54	29° ✕ 30'12	-15°-38'-41
conjunction	2059 Mar 10 17:44	20° ✕ 09'15	-14°-29'-2	minimum elong	2067 Mar 20 00:49	29° ✕ 30'11	15°38'43
minimum elong	2059 Mar 10 17:36	20° ✕ 09'14	14°29'02	max. Earth dist.	2067 Mar 22 18:24	29° ✕ 34'21	45.97539 AU
max. Earth dist.	2059 Mar 13 15:00	20° ✕ 13'48	44.42724 AU		2067 Apr 08 22:04	0° ° °	
retrograde	2059 Jun 21 20:07	21° ✕ 52'07		retrograde	2067 Jul 01 02:16	1° ° ° 09'37	
min. Earth dist.	2059 Sep 10 16:31	20° ✕ 50'19	42.59666 AU	min. Earth dist.	2067 Sep 20 07:48	0° ° ° 08'51	44.14486 AU
opposition	2059 Sep 13 13:10	20° ✕ 46'48	-15°-14'-55	opposition	2067 Sep 23 00:37	0° ° ° 05'36	-16°-24'-21
direct	2059 Dec 03 15:21	19° ✕ 42'51			2067 Sep 27 16:43	30° ° ° °	
				direct	2067 Dec 13 05:00	29° ✕ 03'03	
conjunction	2060 Mar 11 04:23	21° ✕ 21'26	-14°-39'-18		2068 Feb 23 13:41	0° ° °	
minimum elong	2060 Mar 11 04:15	21° ✕ 21'25	14°39'19				
max. Earth dist.	2060 Mar 14 00:46	21° ✕ 25'54	44.63031 AU	conjunction	2068 Mar 20 10:09	0° ° ° 38'07	-15°-45'-28
retrograde	2060 Jun 22 06:08	23° ✕ 03'50		minimum elong	2068 Mar 20 10:04	0° ° ° 38'07	15°45'29
min. Earth dist.	2060 Sep 11 04:57	22° ✕ 02'07	42.79956 AU	max. Earth dist.	2068 Mar 23 03:55	0° ° ° 42'17	46.15681 AU
opposition	2060 Sep 14 00:32	21° ✕ 58'40	-15°-25'-13	retrograde	2068 Jul 01 12:25	2° ° ° 17'10	
direct	2060 Dec 04 03:49	20° ✕ 54'53		min. Earth dist.	2068 Sep 20 19:03	1° ° ° 16'29	44.32546 AU
				opposition	2068 Sep 23 10:05	1° ° ° 13'21	-16°-31'-2
conjunction	2061 Mar 12 14:55	22° ✕ 32'58	-14°-49'-7	direct	2068 Dec 13 14:15	0° ° ° 10'58	
minimum elong	2061 Mar 12 14:48	22° ✕ 32'57	14°49'08				
max. Earth dist.	2061 Mar 15 11:36	22° ✕ 37'26	44.82994 AU	conjunction	2069 Mar 21 19:16	1° ° ° 45'40	-15°-51'-52
retrograde	2061 Jun 23 15:03	24° ✕ 14'54		minimum elong	2069 Mar 21 19:12	1° ° ° 45'40	15°51'54
min. Earth dist.	2061 Sep 12 16:35	23° ✕ 13'18	42.99907 AU	max. Earth dist.	2069 Mar 24 11:27	1° ° ° 49'42	46.33428 AU
opposition	2061 Sep 15 11:31	23° ✕ 09'53	-15°-35'-3	retrograde	2069 Jul 02 22:46	3° ° ° 24'20	

min. Earth dist.	2069 Sep 22 04:21	2°♊23'48	44.50170 AU	conjunction	2078 Mar 31 21:16	11°♊33'41	-16°-33'-12
opposition	2069 Sep 24 19:21	2°♊20'40	-16°-37'-21	minimum elong	2078 Mar 31 21:17	11°♊33'41	16°33'13
direct	2069 Dec 14 21:35	1°♊18'27		max. Earth dist.	2078 Apr 03 07:40	11°♊37'15	47.75022 AU
				retrograde	2078 Jul 12 20:22	13°♊09'18	
conjunction	2070 Mar 23 04:10	2°♊52'47	-15°-57'-54	min. Earth dist.	2078 Oct 02 15:21	12°♊09'35	45.90879 AU
minimum elong	2070 Mar 23 04:05	2°♊52'47	15°57'54	opposition	2078 Oct 04 22:41	12°♊06'53	-17°-17'-23
max. Earth dist.	2070 Mar 25 19:28	2°♊56'45	46.50703 AU	direct	2078 Dec 25 05:31	11°♊05'56	
retrograde	2070 Jul 04 07:24	4°♊31'05					
min. Earth dist.	2070 Sep 23 15:25	3°♊30'36	44.67312 AU	conjunction	2079 Apr 02 04:45	12°♊37'16	-16°-35'-59
opposition	2070 Sep 26 04:34	3°♊27'34	-16°-43'-17	minimum elong	2079 Apr 02 04:44	12°♊37'16	16°36'00
direct	2070 Dec 16 06:17	2°♊25'31		max. Earth dist.	2079 Apr 04 13:32	12°♊40'43	47.89226 AU
				retrograde	2079 Jul 14 06:57	14°♊12'36	
conjunction	2071 Mar 24 13:02	3°♊59'28	-16°-3'-35	min. Earth dist.	2079 Oct 03 22:51	13°♊13'02	46.04954 AU
minimum elong	2071 Mar 24 12:59	3°♊59'28	16°03'36	opposition	2079 Oct 06 06:13	13°♊10'21	-17°-19'-59
max. Earth dist.	2071 Mar 27 03:48	4°♊03'23	46.67512 AU	direct	2079 Dec 26 09:58	12°♊09'33	
retrograde	2071 Jul 05 13:14	5°♊37'23					
min. Earth dist.	2071 Sep 25 00:54	4°♊37'01	44.83969 AU	conjunction	2080 Apr 02 12:09	13°♊40'37	-16°-38'-27
opposition	2071 Sep 27 13:30	4°♊34'00	-16°-48'-52	minimum elong	2080 Apr 02 12:11	13°♊40'38	16°38'28
direct	2071 Dec 17 18:01	3°♊32'05		max. Earth dist.	2080 Apr 04 20:33	13°♊44'02	48.03059 AU
				retrograde	2080 Jul 14 16:36	15°♊15'41	
conjunction	2072 Mar 24 21:28	5°♊05'39	-16°-8'-54	min. Earth dist.	2080 Oct 04 08:25	14°♊16'11	46.18624 AU
minimum elong	2072 Mar 24 21:25	5°♊05'39	16°08'54	opposition	2080 Oct 06 13:44	14°♊13'35	-17°-22'-15
max. Earth dist.	2072 Mar 27 10:25	5°♊09'27	46.83857 AU	direct	2080 Dec 26 14:45	13°♊12'57	
retrograde	2072 Jul 05 22:07	6°♊43'12					
min. Earth dist.	2072 Sep 25 10:28	5°♊42'54	45.00195 AU	conjunction	2081 Apr 03 19:41	14°♊43'46	-16°-40'-35
opposition	2072 Sep 27 22:19	5°♊39'57	-16°-54'-4	minimum elong	2081 Apr 03 19:42	14°♊43'46	16°40'36
direct	2072 Dec 18 03:25	4°♊38'09		max. Earth dist.	2081 Apr 06 03:07	14°♊47'07	48.16465 AU
				retrograde	2081 Jul 15 21:14	16°♊18'33	
conjunction	2073 Mar 26 05:57	6°♊11'21	-16°-13'-52	min. Earth dist.	2081 Oct 05 15:57	15°♊19'10	46.31816 AU
minimum elong	2073 Mar 26 05:55	6°♊11'21	16°13'53	opposition	2081 Oct 07 20:50	15°♊16'36	-17°-24'-12
max. Earth dist.	2073 Mar 28 19:14	6°♊15'09	46.99794 AU	direct	2081 Dec 27 23:31	14°♊16'05	
retrograde	2073 Jul 07 07:10	7°♊48'32					
min. Earth dist.	2073 Sep 26 20:26	6°♊48'17	45.16031 AU	conjunction	2082 Apr 05 02:58	15°♊46'38	-16°-42'-26
opposition	2073 Sep 29 06:43	6°♊45'24	-16°-58'-54	minimum elong	2082 Apr 05 03:00	15°♊46'38	16°42'28
direct	2073 Dec 19 12:02	5°♊43'44		max. Earth dist.	2082 Apr 07 08:23	15°♊49'52	48.29369 AU
				retrograde	2082 Jul 17 02:46	17°♊21'10	
conjunction	2074 Mar 27 14:07	7°♊16'34	-16°-18'-28	min. Earth dist.	2082 Oct 07 00:44	16°♊21'49	46.44498 AU
minimum elong	2074 Mar 27 14:06	7°♊16'34	16°18'28	opposition	2082 Oct 09 04:07	16°♊19'20	-17°-25'-51
max. Earth dist.	2074 Mar 30 01:57	7°♊20'16	47.15391 AU	direct	2082 Dec 29 08:39	15°♊18'56	
retrograde	2074 Jul 08 16:55	8°♊53'24					
min. Earth dist.	2074 Sep 28 04:17	7°♊53'18	45.31552 AU	conjunction	2083 Apr 06 10:11	16°♊49'13	-16°-44'00
opposition	2074 Sep 30 15:00	7°♊50'24	-17°-3'-22	minimum elong	2083 Apr 06 10:12	16°♊49'13	16°44'00
direct	2074 Dec 20 18:10	6°♊48'52		max. Earth dist.	2083 Apr 08 15:28	16°♊52'25	48.41754 AU
				retrograde	2083 Jul 18 08:51	18°♊23'28	
conjunction	2075 Mar 28 21:58	8°♊21'22	-16°-22'-42	min. Earth dist.	2083 Oct 08 09:23	17°♊24'08	46.56641 AU
minimum elong	2075 Mar 28 21:56	8°♊21'22	16°22'43	opposition	2083 Oct 10 11:14	17°♊21'43	-17°-27'-13
max. Earth dist.	2075 Mar 31 09:32	8°♊25'02	47.30688 AU	direct	2083 Dec 30 18:21	16°♊21'25	
retrograde	2075 Jul 09 23:46	9°♊57'52					
min. Earth dist.	2075 Sep 29 14:06	8°♊57'48	45.46792 AU	conjunction	2084 Apr 06 17:15	17°♊51'25	-16°-45'-17
opposition	2075 Oct 01 23:17	8°♊55'00	-17°-7'-26	minimum elong	2084 Apr 06 17:18	17°♊51'25	16°45'18
direct	2075 Dec 22 02:34	7°♊53'36		max. Earth dist.	2084 Apr 08 20:27	17°♊54'29	48.53631 AU
				retrograde	2084 Jul 18 17:59	19°♊25'22	
conjunction	2076 Mar 29 05:57	9°♊25'47	-16°-26'-34	min. Earth dist.	2084 Oct 08 16:29	18°♊26'07	46.68298 AU
minimum elong	2076 Mar 29 05:57	9°♊25'47	16°26'34	opposition	2084 Oct 10 17:59	18°♊23'43	-17°-28'-17
max. Earth dist.	2076 Mar 31 17:23	9°♊29'26	47.45734 AU	direct	2084 Dec 30 23:59	17°♊23'30	
retrograde	2076 Jul 10 04:26	11°♊01'58					
min. Earth dist.	2076 Sep 29 21:57	10°♊02'03	45.61765 AU	conjunction	2085 Apr 08 00:14	18°♊53'13	-16°-46'-16
opposition	2076 Oct 02 07:08	9°♊59'14	-17°-11'-7	minimum elong	2085 Apr 08 00:17	18°♊53'13	16°46'17
direct	2076 Dec 22 12:30	8°♊57'59		max. Earth dist.	2085 Apr 10 02:48	18°♊56'14	48.65039 AU
				retrograde	2085 Jul 20 01:21	20°♊26'53	
conjunction	2077 Mar 30 13:38	10°♊29'53	-16°-30'-3	min. Earth dist.	2085 Oct 10 01:17	19°♊27'36	46.79516 AU
minimum elong	2077 Mar 30 13:37	10°♊29'53	16°30'05	opposition	2085 Oct 12 00:47	19°♊25'19	-17°-29'-3
max. Earth dist.	2077 Apr 01 23:37	10°♊33'26	47.60515 AU	direct	2086 Jan 01 05:44	18°♊25'10	
retrograde	2077 Jul 11 12:45	12°♊05'46					
min. Earth dist.	2077 Oct 01 06:28	11°♊05'57	45.76476 AU	conjunction	2086 Apr 09 07:00	19°♊54'36	-16°-46'-57
opposition	2077 Oct 03 15:01	11°♊03'11	-17°-14'-26	minimum elong	2086 Apr 09 07:02	19°♊54'36	16°46'59
direct	2077 Dec 23 20:39	10°♊02'05		max. Earth dist.	2086 Apr 11 08:56	19°♊57'34	48.76053 AU

retrograde	2086 Jul 21 06:14	21°♊27'59		direct	2095 Jan 10 15:24	27°♊27'31	
min. Earth dist.	2086 Oct 11 07:49	20°♊28'46	46.90353 AU				
opposition	2086 Oct 13 07:16	20°♊26'29	-17°-29'-31	conjunction	2095 Apr 18 16:03	28°♊55'10	-16°-39'-45
direct	2087 Jan 02 12:21	19°♊26'25		minimum elong	2095 Apr 18 16:09	28°♊55'10	16°39'47
				max. Earth dist.	2095 Apr 20 09:03	28°♊57'33	49.59881 AU
conjunction	2087 Apr 10 13:35	20°♊55'36	-16°-47'-20		2095 Jun 09 04:56	0°♋	
minimum elong	2087 Apr 10 13:38	20°♊55'37	16°47'21	retrograde	2095 Jul 30 15:17	0°♋26'40	
max. Earth dist.	2087 Apr 12 13:59	20°♊58'29	48.86717 AU		2095 Sep 20 22:04	30°♌♊	
retrograde	2087 Jul 22 11:54	22°♊28'43		min. Earth dist.	2095 Oct 20 23:56	29°♊27'53	47.72274 AU
min. Earth dist.	2087 Oct 12 15:24	21°♊29'32	47.00877 AU	opposition	2095 Oct 22 13:35	29°♊26'06	-17°-19'-57
opposition	2087 Oct 14 13:46	21°♊27'18	-17°-29'-39	direct	2096 Jan 11 20:07	28°♊26'53	
direct	2088 Jan 03 19:23	20°♊27'18					
				conjunction	2096 Apr 18 22:08	29°♊54'22	-16°-37'-37
conjunction	2088 Apr 10 20:11	21°♊56'15	-16°-47'-25	minimum elong	2096 Apr 18 22:14	29°♊54'22	16°37'38
minimum elong	2088 Apr 10 20:14	21°♊56'15	16°47'26	max. Earth dist.	2096 Apr 20 13:58	29°♊56'40	49.66994 AU
max. Earth dist.	2088 Apr 12 20:51	21°♊59'08	48.97082 AU		2096 Apr 22 23:18	0°♋	
retrograde	2088 Jul 22 16:13	23°♊29'07		retrograde	2096 Jul 30 20:42	1°♋25'39	
min. Earth dist.	2088 Oct 12 22:40	22°♊29'59	47.11085 AU	min. Earth dist.	2096 Oct 21 05:42	0°♋26'56	47.79092 AU
opposition	2088 Oct 14 20:05	22°♊27'48	-17°-29'-28	opposition	2096 Oct 22 19:03	0°♋25'10	-17°-17'-33
direct	2089 Jan 04 04:19	21°♊27'54			2096 Nov 14 14:30	30°♌♊	
				direct	2097 Jan 12 00:44	29°♊25'59	
conjunction	2089 Apr 12 02:38	22°♊56'37	-16°-47'-10		2097 Mar 10 00:46	0°♋	
minimum elong	2089 Apr 12 02:43	22°♊56'37	16°47'11				
max. Earth dist.	2089 Apr 14 01:36	22°♊59'23	49.07155 AU	conjunction	2097 Apr 20 04:00	0°♋53'18	-16°-35'-14
retrograde	2089 Jul 24 00:25	24°♊29'15		minimum elong	2097 Apr 20 04:06	0°♋53'18	16°35'16
min. Earth dist.	2089 Oct 14 04:48	23°♊30'12	47.21004 AU	max. Earth dist.	2097 Apr 21 17:57	0°♋55'30	49.73621 AU
opposition	2089 Oct 16 02:08	23°♊28'02	-17°-28'-59	retrograde	2097 Aug 01 01:07	2°♋24'24	
direct	2090 Jan 05 09:35	22°♊28'14		min. Earth dist.	2097 Oct 22 12:46	1°♋25'38	47.85471 AU
				opposition	2097 Oct 24 00:25	1°♋23'57	-17°-14'-52
conjunction	2090 Apr 13 08:59	23°♊56'45	-16°-46'-38	direct	2098 Jan 13 06:20	0°♋24'49	
minimum elong	2090 Apr 13 09:02	23°♊56'45	16°46'39				
max. Earth dist.	2090 Apr 15 07:42	23°♊59'29	49.16925 AU	conjunction	2098 Apr 21 09:53	1°♋51'58	-16°-32'-36
retrograde	2090 Jul 25 09:02	25°♊29'10		minimum elong	2098 Apr 21 10:00	1°♋51'59	16°32'36
min. Earth dist.	2090 Oct 15 12:46	24°♊30'09	47.30608 AU	max. Earth dist.	2098 Apr 22 23:50	1°♋54'10	49.79847 AU
opposition	2090 Oct 17 08:21	24°♊28'04	-17°-28'-10	retrograde	2098 Aug 02 03:49	3°♋22'53	
direct	2091 Jan 06 13:43	23°♊28'22		min. Earth dist.	2098 Oct 23 18:52	2°♋24'09	47.91461 AU
				opposition	2098 Oct 25 05:41	2°♋22'30	-17°-11'-56
conjunction	2091 Apr 14 15:11	24°♊56'41	-16°-45'-48	direct	2099 Jan 14 14:39	1°♋23'25	
minimum elong	2091 Apr 14 15:17	24°♊56'42	16°45'49				
max. Earth dist.	2091 Apr 16 13:12	24°♊59'24	49.26385 AU	conjunction	2099 Apr 22 15:23	2°♋50'23	-16°-29'-41
retrograde	2091 Jul 26 14:29	26°♊28'55		minimum elong	2099 Apr 22 15:29	2°♋50'23	16°29'42
min. Earth dist.	2091 Oct 16 18:44	25°♊30'01	47.39863 AU	max. Earth dist.	2099 Apr 24 03:35	2°♋52'29	49.85727 AU
opposition	2091 Oct 18 14:20	25°♊27'56	-17°-27'-4	retrograde	2099 Aug 03 10:10	4°♋21'08	
direct	2092 Jan 07 18:56	24°♊28'21		min. Earth dist.	2099 Oct 25 00:26	3°♋22'25	47.97134 AU
				opposition	2099 Oct 26 10:53	3°♋20'48	-17°-8'-43
conjunction	2092 Apr 14 21:25	25°♊56'30	-16°-44'-40	direct	2100 Jan 15 20:40	2°♋21'45	
minimum elong	2092 Apr 14 21:29	25°♊56'30	16°44'41				
max. Earth dist.	2092 Apr 16 17:43	25°♊59'06	49.35465 AU	conjunction	2100 Apr 23 21:06	3°♋48'35	-16°-26'-30
retrograde	2092 Jul 26 19:36	27°♊28'32		minimum elong	2100 Apr 23 21:14	3°♋48'35	16°26'30
min. Earth dist.	2092 Oct 17 02:21	26°♊29'40	47.48719 AU	max. Earth dist.	2100 Apr 25 09:02	3°♋50'39	49.91294 AU
opposition	2092 Oct 18 20:13	26°♊27'41	-17°-25'-40	retrograde	2100 Aug 04 18:15	5°♋19'09	
direct	2093 Jan 08 01:52	25°♊28'12		min. Earth dist.	2100 Oct 26 07:12	4°♋20'26	48.02503 AU
				opposition	2100 Oct 27 15:58	4°♋18'53	-17°-5'-13
conjunction	2093 Apr 16 03:48	26°♊56'12	-16°-43'-17				
minimum elong	2093 Apr 16 03:54	26°♊56'12	16°43'18				
max. Earth dist.	2093 Apr 17 23:59	26°♊58'47	49.44113 AU				
retrograde	2093 Jul 27 23:48	28°♊28'04					
min. Earth dist.	2093 Oct 18 09:32	27°♊29'14	47.57092 AU				
opposition	2093 Oct 20 02:03	27°♊27'19	-17°-24'-1				
direct	2094 Jan 09 10:35	26°♊27'56					
conjunction	2094 Apr 17 09:52	27°♊55'46	-16°-41'-38				
minimum elong	2094 Apr 17 09:57	27°♊55'46	16°41'39				
max. Earth dist.	2094 Apr 19 03:42	27°♊58'12	49.52263 AU				
retrograde	2094 Jul 29 08:01	29°♊27'27					
min. Earth dist.	2094 Oct 19 15:53	28°♊28'42	47.64951 AU				
opposition	2094 Oct 21 07:49	28°♊26'48	-17°-22'-6				

direct	2100 Jan 15 20:40	2°8'21.45		conjunction	2108 May 01 17:10	11°8'29.37	-15°-51'-42
				minimum elong	2108 May 01 17:19	11°8'29.38	15°51'43
conjunction	2100 Apr 23 21:06	3°8'48.35	-16°-26'-30	max. Earth dist.	2108 May 02 20:23	11°8'31.10	50.23339 AU
minimum elong	2100 Apr 23 21:14	3°8'48.35	16°26'30	retrograde	2108 Aug 12 09:56	12°8'59.10	
max. Earth dist.	2100 Apr 25 09:02	3°8'50.39	49.91294 AU	min. Earth dist.	2108 Nov 03 06:41	12°8'00.33	48.32252 AU
retrograde	2100 Aug 04 18:15	5°8'19.09		opposition	2108 Nov 04 06:54	11°8'59.25	-16°-27'-45
min. Earth dist.	2100 Oct 26 07:12	4°8'20.26	48.02503 AU	direct	2109 Jan 24 16:47	11°8'00.49	
opposition	2100 Oct 27 15:58	4°8'18.53	-17°-5'-13				
direct	2101 Jan 17 00:31	3°8'19.54		conjunction	2109 May 02 22:31	12°8'26.42	-15°-46'-18
				minimum elong	2109 May 02 22:40	12°8'26.43	15°46'19
conjunction	2101 Apr 25 02:44	4°8'46.35	-16°-23'-3	max. Earth dist.	2109 May 03 23:30	12°8'28.08	50.25242 AU
minimum elong	2101 Apr 25 02:51	4°8'46.35	16°23'04	retrograde	2109 Aug 13 14:51	13°8'56.09	
max. Earth dist.	2101 Apr 26 13:50	4°8'48.36	49.96588 AU	opposition	2109 Nov 05 11:31	12°8'56.25	-16°-22'-1
retrograde	2101 Aug 06 00:51	6°8'17.00		min. Earth dist.	2109 Nov 04 12:06	12°8'57.31	48.33840 AU
min. Earth dist.	2101 Oct 27 11:58	5°8'18.21	48.07587 AU	direct	2110 Jan 25 22:22	11°8'57.50	
opposition	2101 Oct 28 20:57	5°8'16.48	-17°-1'-26				
direct	2102 Jan 18 02:56	4°8'17.52		conjunction	2110 May 04 03:42	13°8'23.37	-15°-40'-41
				minimum elong	2110 May 04 03:51	13°8'23.38	15°40'43
conjunction	2102 Apr 26 08:04	5°8'44.26	-16°-19'-19	max. Earth dist.	2110 May 05 04:08	13°8'25.01	50.26701 AU
minimum elong	2102 Apr 26 08:13	5°8'44.26	16°19'20	retrograde	2110 Aug 14 21:08	14°8'52.58	
max. Earth dist.	2102 Apr 27 17:46	5°8'46.22	50.01589 AU	opposition	2110 Nov 06 16:10	13°8'53.15	-16°-16'-2
retrograde	2102 Aug 07 05:07	7°8'14.42		min. Earth dist.	2110 Nov 05 18:34	13°8'54.16	48.35013 AU
min. Earth dist.	2102 Oct 28 18:32	6°8'16.04	48.12380 AU	direct	2111 Jan 27 03:02	12°8'54.41	
opposition	2102 Oct 30 02:03	6°8'14.35	-16°-57'-22				
direct	2103 Jan 19 08:23	5°8'15.43		conjunction	2111 May 05 08:57	14°8'20.24	-15°-34'-49
				minimum elong	2111 May 05 09:07	14°8'20.24	15°34'50
conjunction	2103 Apr 27 13:39	6°8'42.10	-16°-15'-19	max. Earth dist.	2111 May 06 08:28	14°8'21.44	50.27800 AU
minimum elong	2103 Apr 27 13:46	6°8'42.10	16°15'20		2111 Jun 04 11:10	15°8'	
max. Earth dist.	2103 Apr 28 23:29	6°8'44.07	50.06294 AU	retrograde	2111 Aug 16 03:52	15°8'49.38	
retrograde	2103 Aug 08 06:40	8°8'12.19			2111 Oct 29 21:22	15°R8'	
min. Earth dist.	2103 Oct 30 00:17	7°8'13.42	48.16840 AU	opposition	2111 Nov 07 20:32	14°8'49.57	-16°-9'-48
opposition	2103 Oct 31 06:56	7°8'12.16	-16°-53'-2	min. Earth dist.	2111 Nov 06 22:51	14°8'50.58	48.35839 AU
direct	2104 Jan 20 16:31	6°8'13.28		direct	2112 Jan 28 04:59	13°8'51.24	
					2112 Apr 22 23:23	15°8'	
conjunction	2104 Apr 27 19:05	7°8'39.49	-16°-11'-3				
minimum elong	2104 Apr 27 19:14	7°8'39.50	16°11'04	conjunction	2112 May 05 14:07	15°8'17.04	-15°-28'-42
max. Earth dist.	2104 Apr 29 02:52	7°8'41.39	50.10651 AU	minimum elong	2112 May 05 14:16	15°8'17.04	15°28'44
retrograde	2104 Aug 08 13:00	9°8'09.51		max. Earth dist.	2112 May 06 12:00	15°8'18.18	50.28559 AU
min. Earth dist.	2104 Oct 30 05:47	8°8'11.18	48.20921 AU	retrograde	2112 Aug 16 08:42	16°8'46.13	
opposition	2104 Oct 31 11:48	8°8'09.53	-16°-48'-26	min. Earth dist.	2112 Nov 07 05:06	15°8'47.30	48.36349 AU
direct	2105 Jan 20 21:38	7°8'11.09		opposition	2112 Nov 08 01:05	15°8'46.34	-16°-3'-18
					2112 Dec 25 19:10	15°R8'	
conjunction	2105 Apr 29 00:39	8°8'37.25	-16°-6'-33	direct	2113 Jan 28 09:10	14°8'48.02	
minimum elong	2105 Apr 29 00:47	8°8'37.25	16°06'33		2113 Mar 02 19:46	15°8'	
max. Earth dist.	2105 Apr 30 07:43	8°8'39.12	50.14577 AU				
retrograde	2105 Aug 09 19:43	10°8'07.21		conjunction	2113 May 06 19:22	16°8'13.39	-15°-22'-20
opposition	2105 Nov 01 16:37	9°8'07.27	-16°-43'-36	minimum elong	2113 May 06 19:32	16°8'13.40	15°22'21
min. Earth dist.	2105 Oct 31 12:50	9°8'08.45	48.24536 AU	max. Earth dist.	2113 May 07 17:20	16°8'14.54	50.29015 AU
direct	2106 Jan 22 02:32	8°8'08.46		retrograde	2113 Aug 17 09:44	17°8'42.45	
				min. Earth dist.	2113 Nov 08 09:56	16°8'44.03	48.36545 AU
conjunction	2106 Apr 30 06:13	9°8'34.56	-16°-1'-49	opposition	2113 Nov 09 05:22	16°8'43.09	-15°-56'-33
minimum elong	2106 Apr 30 06:23	9°8'34.57	16°01'50	direct	2114 Jan 29 16:40	15°8'44.38	
max. Earth dist.	2106 May 01 12:01	9°8'36.38	50.18029 AU				
retrograde	2106 Aug 11 01:59	11°8'04.44		conjunction	2114 May 08 00:25	17°8'10.14	-15°-15'-43
opposition	2106 Nov 02 21:25	10°8'04.55	-16°-38'-33	minimum elong	2114 May 08 00:34	17°8'10.15	15°15'45
min. Earth dist.	2106 Nov 01 18:00	10°8'06.12	48.27640 AU	max. Earth dist.	2114 May 08 20:26	17°8'11.22	50.29178 AU
direct	2107 Jan 23 05:40	9°8'06.16		retrograde	2114 Aug 18 15:08	18°8'39.17	
				opposition	2114 Nov 10 09:45	17°8'39.44	-15°-49'-32
conjunction	2107 May 01 11:34	10°8'32.21	-15°-56'-52	min. Earth dist.	2114 Nov 09 14:48	17°8'40.37	48.36450 AU
minimum elong	2107 May 01 11:42	10°8'32.22	15°56'52	direct	2115 Jan 30 21:40	16°8'41.16	
max. Earth dist.	2107 May 02 15:11	10°8'33.56	50.20946 AU				
retrograde	2107 Aug 12 07:32	12°8'02.02		conjunction	2115 May 09 05:31	18°8'06.51	-15°-8'-52
min. Earth dist.	2107 Nov 03 00:55	11°8'03.26	48.30210 AU	minimum elong	2115 May 09 05:42	18°8'06.51	15°08'52
opposition	2107 Nov 04 02:20	11°8'02.15	-16°-33'-16	max. Earth dist.	2115 May 10 01:12	18°8'07.58	50.29024 AU
direct	2108 Jan 24 09:26	10°8'03.38		retrograde	2115 Aug 19 21:47	19°8'35.52	

opposition	2115 Nov 11 14:13	18° 8 36'22	-15°-42'-16	conjunction	2124 May 17 04:46	26° 8 36'40	-13°-57'-7
min. Earth dist.	2115 Nov 10 21:08	18° 8 37'11	48.36010 AU	minimum elong	2124 May 17 04:58	26° 8 36'41	13°57'07
direct	2116 Feb 01 02:08	17° 8 37'57		max. Earth dist.	2124 May 17 12:02	26° 8 37'05	50.07024 AU
				retrograde	2124 Aug 27 16:30	28° 8 05'23	
conjunction	2116 May 09 10:47	19° 8 03'31	-15°-1'-45	opposition	2124 Nov 19 04:45	27° 8 05'57	-14°-26'-48
minimum elong	2116 May 09 10:57	19° 8 03'32	15°01'46	min. Earth dist.	2124 Nov 18 21:55	27° 8 06'16	48.10864 AU
max. Earth dist.	2116 May 10 05:24	19° 8 04'34	50.28520 AU	direct	2125 Feb 08 18:21	26° 8 07'21	
retrograde	2116 Aug 20 04:15	20° 8 32'30					
opposition	2116 Nov 11 18:23	19° 8 33'05	-15°-34'-46	conjunction	2125 May 18 10:01	27° 8 32'57	-13°-48'-1
min. Earth dist.	2116 Nov 11 01:34	19° 8 33'52	48.35180 AU	minimum elong	2125 May 18 10:11	27° 8 32'58	13°48'02
direct	2117 Feb 01 04:11	18° 8 34'41		max. Earth dist.	2125 May 18 16:51	27° 8 33'20	50.02488 AU
				retrograde	2125 Aug 28 21:35	29° 8 01'40	
conjunction	2117 May 10 16:02	20° 8 00'17	-14°-54'-25	opposition	2125 Nov 20 09:03	28° 8 02'13	-14°-17'-14
minimum elong	2117 May 10 16:13	20° 8 00'17	14°54'26	min. Earth dist.	2125 Nov 20 03:52	28° 8 02'28	48.06051 AU
max. Earth dist.	2117 May 11 08:35	20° 8 01'13	50.27579 AU	direct	2126 Feb 09 23:40	27° 8 03'36	
retrograde	2117 Aug 21 10:39	21° 8 29'14					
opposition	2117 Nov 12 22:50	20° 8 29'51	-15°-27'-2	conjunction	2126 May 19 15:03	28° 8 29'14	-13°-38'-40
min. Earth dist.	2117 Nov 12 08:07	20° 8 30'33	48.33890 AU	minimum elong	2126 May 19 15:16	28° 8 29'15	13°38'42
direct	2118 Feb 02 06:26	19° 8 31'29		max. Earth dist.	2126 May 19 21:09	28° 8 29'35	49.97678 AU
				retrograde	2126 Aug 30 03:41	29° 8 57'58	
conjunction	2118 May 11 21:18	20° 8 57'06	-14°-46'-52	opposition	2126 Nov 21 13:15	28° 8 58'31	-14°-7'-25
minimum elong	2118 May 11 21:28	20° 8 57'06	14°46'53	min. Earth dist.	2126 Nov 21 07:52	28° 8 58'46	48.00954 AU
max. Earth dist.	2118 May 12 13:27	20° 8 58'00	50.26147 AU	direct	2127 Feb 11 02:31	27° 8 59'53	
retrograde	2118 Aug 22 12:58	22° 8 26'01					
opposition	2118 Nov 14 03:15	21° 8 26'40	-15°-19'-6	conjunction	2127 May 20 20:14	29° 8 25'35	-13°-29'-5
min. Earth dist.	2118 Nov 13 13:36	21° 8 27'19	48.32064 AU	minimum elong	2127 May 20 20:25	29° 8 25'35	13°29'07
direct	2119 Feb 03 13:08	20° 8 28'18		max. Earth dist.	2127 May 21 00:33	29° 8 25'49	49.92567 AU
					2127 Jun 15 21:45	0° II	
conjunction	2119 May 13 02:36	21° 8 53'54	-14°-39'-7	retrograde	2127 Aug 31 10:37	0° II 54'21	
minimum elong	2119 May 13 02:47	21° 8 53'55	14°39'09		2127 Nov 18 04:49	30° R 8	
max. Earth dist.	2119 May 13 16:15	21° 8 54'41	50.24176 AU	opposition	2127 Nov 22 17:32	29° 8 54'54	-13°-57'-21
retrograde	2119 Aug 23 17:05	23° 8 22'49		min. Earth dist.	2127 Nov 22 13:56	29° 8 55'04	47.95552 AU
opposition	2119 Nov 15 07:35	22° 8 23'28	-15°-10'-56	direct	2128 Feb 12 04:37	28° 8 56'15	
min. Earth dist.	2119 Nov 14 19:08	22° 8 24'03	48.29698 AU		2128 May 04 15:00	0° II	
direct	2120 Feb 04 18:40	21° 8 25'05					
				conjunction	2128 May 21 01:38	0° II 22'02	-13°-19'-15
conjunction	2120 May 13 07:59	22° 8 50'40	-14°-31'-9	minimum elong	2128 May 21 01:51	0° II 22'03	13°19'17
minimum elong	2120 May 13 08:10	22° 8 50'41	14°31'10	max. Earth dist.	2128 May 21 05:58	0° II 22'17	49.87132 AU
max. Earth dist.	2120 May 13 20:32	22° 8 51'23	50.21651 AU	retrograde	2128 Aug 31 13:40	1° II 50'52	
retrograde	2120 Aug 23 22:22	24° 8 19'33		opposition	2128 Nov 22 21:45	0° II 51'26	-13°-47'-3
opposition	2120 Nov 15 12:00	23° 8 20'12	-15°-2'-34	min. Earth dist.	2128 Nov 22 18:57	0° II 51'34	47.89780 AU
min. Earth dist.	2120 Nov 15 01:38	23° 8 20'41	48.26782 AU		2129 Jan 17 09:58	30° R 8	
direct	2121 Feb 05 00:49	22° 8 21'47		direct	2129 Feb 12 10:25	29° 8 52'46	
					2129 Mar 10 07:16	0° II	
conjunction	2121 May 14 13:16	23° 8 47'21	-14°-22'-59				
minimum elong	2121 May 14 13:27	23° 8 47'22	14°23'00	conjunction	2129 May 22 06:54	1° II 18'40	-13°-9'-12
max. Earth dist.	2121 May 15 00:32	23° 8 47'59	50.18619 AU	minimum elong	2129 May 22 07:05	1° II 18'40	13°09'12
retrograde	2121 Aug 25 05:49	25° 8 16'10		max. Earth dist.	2129 May 22 08:58	1° II 18'47	49.81300 AU
opposition	2121 Nov 16 16:08	24° 8 16'48	-14°-53'-59	retrograde	2129 Sep 01 18:40	2° II 47'33	
min. Earth dist.	2121 Nov 16 06:06	24° 8 17'16	48.23382 AU	opposition	2129 Nov 24 01:59	1° II 48'08	-13°-36'-30
direct	2122 Feb 06 02:56	23° 8 18'21		min. Earth dist.	2129 Nov 24 00:17	1° II 48'13	47.83588 AU
				direct	2130 Feb 13 14:50	0° II 49'27	
conjunction	2122 May 15 18:24	24° 8 43'54	-14°-14'-36				
minimum elong	2122 May 15 18:36	24° 8 43'55	14°14'36	conjunction	2130 May 23 12:25	2° II 15'27	-12°-58'-55
max. Earth dist.	2122 May 16 03:46	24° 8 44'26	50.15125 AU	minimum elong	2130 May 23 12:37	2° II 15'27	12°58'57
retrograde	2122 Aug 26 11:40	26° 8 12'40		max. Earth dist.	2130 May 23 13:29	2° II 15'30	49.75001 AU
opposition	2122 Nov 17 20:27	25° 8 13'17	-14°-45'-10	retrograde	2130 Sep 02 23:38	3° II 44'25	
min. Earth dist.	2122 Nov 17 12:20	25° 8 13'40	48.19565 AU	opposition	2130 Nov 25 06:23	2° II 45'00	-13°-25'-44
direct	2123 Feb 07 05:31	24° 8 14'47		min. Earth dist.	2130 Nov 25 06:43	2° II 44'59	47.76896 AU
				direct	2131 Feb 14 20:43	1° II 46'18	
conjunction	2123 May 16 23:36	25° 8 40'20	-14°-5'-58				
minimum elong	2123 May 16 23:46	25° 8 40'21	14°06'00	conjunction	2131 May 24 17:54	3° II 12'23	-12°-48'-26
max. Earth dist.	2123 May 17 08:52	25° 8 40'52	50.11246 AU	minimum elong	2131 May 24 18:06	3° II 12'24	12°48'26
retrograde	2123 Aug 27 13:01	27° 8 09'04		max. Earth dist.	2131 May 24 17:37	3° II 12'22	49.68202 AU
opposition	2123 Nov 19 00:39	26° 8 09'39	-14°-36'-6	retrograde	2131 Sep 04 07:24	4° II 41'25	
min. Earth dist.	2123 Nov 18 17:09	26° 8 10'00	48.15371 AU	opposition	2131 Nov 26 10:43	3° II 41'59	-13°-14'-46
direct	2124 Feb 08 12:37	25° 8 11'06		min. Earth dist.	2131 Nov 26 11:31	3° II 41'57	47.69681 AU

direct	2132 Feb 15 23:04	2°II43'14		minimum elong	2140 Jun 01 21:04	11°II48'31	11°03'48
				max. Earth dist.	2140 Jun 01 09:55	11°II47'53	48.88333 AU
conjunction	2132 May 24 23:30	4°II09'26	-12°-37'-44	retrograde	2140 Sep 12 04:47	13°II18'23	
minimum elong	2132 May 24 23:42	4°II09'26	12°37'45	opposition	2140 Dec 04 03:02	12°II18'33	-11°-25'-12
max. Earth dist.	2132 May 24 20:52	4°II09'17	49.60866 AU	min. Earth dist.	2140 Dec 04 14:06	12°II18'01	46.86877 AU
retrograde	2132 Sep 04 14:54	5°II38'31		direct	2141 Feb 23 18:44	11°II19'10	
opposition	2132 Nov 26 15:06	4°II39'04	-13°-3'-34				
min. Earth dist.	2132 Nov 26 18:12	4°II38'55	47.61950 AU	conjunction	2141 Jun 03 02:58	12°II46'37	-10°-50'-57
direct	2133 Feb 16 00:39	3°II40'15		minimum elong	2141 Jun 03 03:10	12°II46'38	10°50'58
				max. Earth dist.	2141 Jun 02 14:56	12°II45'56	48.77830 AU
conjunction	2133 May 26 05:11	5°II06'32	-12°-26'-49	retrograde	2141 Sep 13 12:08	14°II16'39	
minimum elong	2133 May 26 05:23	5°II06'33	12°26'49	opposition	2141 Dec 05 07:46	13°II16'47	-11°-11'-46
max. Earth dist.	2133 May 26 02:08	5°II06'22	49.53039 AU	min. Earth dist.	2141 Dec 05 19:13	13°II16'14	46.76007 AU
retrograde	2133 Sep 05 17:16	6°II35'41		direct	2142 Feb 24 22:41	12°II17'20	
opposition	2133 Nov 27 19:28	5°II36'11	-12°-52'-8				
min. Earth dist.	2133 Nov 27 23:16	5°II36'00	47.53741 AU	conjunction	2142 Jun 04 08:58	13°II44'59	-10°-37'-53
direct	2134 Feb 17 07:43	4°II37'18		minimum elong	2142 Jun 04 09:09	13°II44'59	10°37'54
				max. Earth dist.	2142 Jun 03 18:44	13°II44'10	48.66871 AU
conjunction	2134 May 27 10:32	6°II03'42	-12°-15'-41	retrograde	2142 Sep 14 21:31	15°II15'11	
minimum elong	2134 May 27 10:43	6°II03'42	12°15'42	opposition	2142 Dec 06 12:48	14°II15'16	-10°-58'-6
max. Earth dist.	2134 May 27 05:20	6°II03'24	49.44772 AU	min. Earth dist.	2142 Dec 07 02:31	14°II14'36	46.64658 AU
retrograde	2134 Sep 06 20:24	7°II32'55		direct	2143 Feb 26 00:08	13°II15'43	
opposition	2134 Nov 28 23:53	6°II33'21	-12°-40'-29				
min. Earth dist.	2134 Nov 29 04:41	6°II33'07	47.45131 AU	conjunction	2143 Jun 05 15:25	14°II43'34	-10°-24'-36
direct	2135 Feb 18 14:14	5°II34'23		minimum elong	2143 Jun 05 15:36	14°II43'35	10°24'37
				max. Earth dist.	2143 Jun 05 00:35	14°II42'43	48.55413 AU
conjunction	2135 May 28 16:11	7°II00'54	-12°-4'-19	retrograde	2143 Sep 16 02:20	16°II13'56	
minimum elong	2135 May 28 16:24	7°II00'55	12°04'19	opposition	2143 Dec 07 17:41	15°II13'56	-10°-44'-12
max. Earth dist.	2135 May 28 10:23	7°II00'34	49.36114 AU	min. Earth dist.	2143 Dec 08 08:14	15°II13'14	46.52782 AU
retrograde	2135 Sep 08 01:08	8°II30'12		direct	2144 Feb 27 06:26	14°II14'17	
opposition	2135 Nov 30 04:17	7°II30'35	-12°-28'-34				
min. Earth dist.	2135 Nov 30 10:47	7°II30'16	47.36155 AU	conjunction	2144 Jun 05 21:49	15°II42'21	-10°-11'-5
direct	2136 Feb 19 20:22	6°II31'32		minimum elong	2144 Jun 05 22:00	15°II42'22	10°11'06
				max. Earth dist.	2144 Jun 05 04:25	15°II41'21	48.43432 AU
conjunction	2136 May 28 21:52	7°II58'09	-11°-52'-42	retrograde	2144 Sep 16 07:23	17°II12'51	
minimum elong	2136 May 28 22:03	7°II58'10	11°52'43	opposition	2144 Dec 07 22:46	16°II12'47	-10°-30'-4
max. Earth dist.	2136 May 28 15:05	7°II57'46	49.27133 AU	min. Earth dist.	2144 Dec 08 14:44	16°II12'01	46.40395 AU
retrograde	2136 Sep 08 07:53	9°II27'33		direct	2145 Feb 27 12:32	15°II13'01	
opposition	2136 Nov 30 08:40	8°II27'53	-12°-16'-25	max. Earth dist.	2145 Jun 06 09:53	16°II40'13	48.30936 AU
min. Earth dist.	2136 Nov 30 15:06	8°II27'34	47.26871 AU				
direct	2137 Feb 19 23:41	7°II28'45		conjunction	2145 Jun 07 04:15	16°II41'17	-9°-57'-21
				minimum elong	2145 Jun 07 04:27	16°II41'18	9°57'22
conjunction	2137 May 30 03:25	8°II55'31	-11°-40'-51	retrograde	2145 Sep 17 11:31	18°II11'57	
minimum elong	2137 May 30 03:38	8°II55'31	11°40'51	opposition	2145 Dec 09 03:53	17°II11'47	-10°-15'-42
max. Earth dist.	2137 May 29 18:56	8°II55'02	49.17845 AU	min. Earth dist.	2145 Dec 09 21:43	17°II10'55	46.27515 AU
retrograde	2137 Sep 09 15:39	10°II25'00		direct	2146 Feb 28 19:57	16°II11'53	
opposition	2137 Dec 01 13:13	9°II25'17	-12°-4'00				
min. Earth dist.	2137 Dec 01 21:19	9°II24'53	47.17304 AU	conjunction	2146 Jun 08 10:44	17°II40'22	-9°-43'-22
direct	2138 Feb 21 01:42	8°II26'05		minimum elong	2146 Jun 08 10:55	17°II40'22	9°43'23
				max. Earth dist.	2146 Jun 07 15:07	17°II39'13	48.17996 AU
conjunction	2138 May 31 09:12	9°II53'00	-11°-28'-45	retrograde	2146 Sep 18 18:14	19°II11'12	
minimum elong	2138 May 31 09:23	9°II53'00	11°28'46	opposition	2146 Dec 10 08:55	18°II10'56	-10°-1'-5
max. Earth dist.	2138 May 31 00:51	9°II52'31	49.08293 AU	min. Earth dist.	2146 Dec 11 02:57	18°II10'04	46.14219 AU
retrograde	2138 Sep 10 19:52	11°II22'35		direct	2147 Mar 02 00:43	17°II10'54	
opposition	2138 Dec 02 17:45	10°II22'49	-11°-51'-20				
min. Earth dist.	2138 Dec 03 02:13	10°II22'25	47.07465 AU	conjunction	2147 Jun 09 17:16	18°II39'36	-9°-29'-10
direct	2139 Feb 22 06:46	9°II23'33		minimum elong	2147 Jun 09 17:27	18°II39'36	9°29'11
				max. Earth dist.	2147 Jun 08 19:42	18°II38'21	48.04648 AU
conjunction	2139 Jun 01 14:52	10°II50'39	-11°-16'-23	retrograde	2147 Sep 20 02:30	20°II10'38	
minimum elong	2139 Jun 01 15:04	10°II50'39	11°16'24	opposition	2147 Dec 11 14:13	19°II10'15	-9°-46'-13
max. Earth dist.	2139 Jun 01 04:34	10°II50'03	48.98473 AU	min. Earth dist.	2147 Dec 12 10:17	19°II09'17	46.00548 AU
retrograde	2139 Sep 12 01:27	12°II20'22		direct	2148 Mar 02 04:10	18°II10'05	
opposition	2139 Dec 03 22:23	11°II20'34	-11°-38'-23	max. Earth dist.	2148 Jun 09 02:26	19°II37'47	47.90951 AU
min. Earth dist.	2139 Dec 04 07:42	11°II20'07	46.97346 AU				
direct	2140 Feb 23 11:25	10°II21'14		conjunction	2148 Jun 10 00:04	19°II39'02	-9°-14'-42
				minimum elong	2148 Jun 10 00:16	19°II39'03	9°14'42
conjunction	2140 Jun 01 20:53	11°II48'30	-11°-3'-48	retrograde	2148 Sep 20 08:34	21°II10'15	

opposition	2148 Dec 11 19:23	20°II09'47	-9°-31'-5	max. Earth dist.	2157 Jun 18 08:07	28°II47'16	46.52761 AU
min. Earth dist.	2148 Dec 12 15:50	20°II08'47	45.86546 AU				
direct	2149 Mar 03 09:43	19°II09'29		conjunction	2157 Jun 19 18:26	28°II49'18	-6°-53'-11
max. Earth dist.	2149 Jun 10 07:03	20°II37'19	47.76951 AU	minimum elong	2157 Jun 19 18:35	28°II49'19	6°53'11
					2157 Aug 14 15:38	0°☾	
conjunction	2149 Jun 11 06:47	20°II38'42	-9°00'00	retrograde	2157 Sep 30 01:16	0°☾23'02	
minimum elong	2149 Jun 11 06:57	20°II38'42	9°00'01		2157 Nov 15 22:52	30°RII	
retrograde	2149 Sep 21 15:36	22°II10'08		opposition	2157 Dec 21 00:50	29°II21'37	-7°-2'-51
opposition	2149 Dec 13 00:50	21°II09'34	-9°-15'-40	min. Earth dist.	2157 Dec 22 08:17	29°II20'04	44.45407 AU
min. Earth dist.	2149 Dec 13 22:12	21°II08'32	45.72270 AU	direct	2158 Mar 12 15:19	28°II20'04	
direct	2150 Mar 04 14:59	20°II09'09		max. Earth dist.	2158 Jun 19 15:55	29°II50'12	46.35262 AU
conjunction	2150 Jun 12 13:34	21°II38'38	-8°-45'-2	conjunction	2158 Jun 21 02:30	29°II52'15	-6°-36'-13
minimum elong	2150 Jun 12 13:45	21°II38'39	8°45'03	minimum elong	2158 Jun 21 02:39	29°II52'16	6°36'14
max. Earth dist.	2150 Jun 11 13:28	21°II37'14	47.62673 AU		2158 Jun 26 12:08	0°☾	
retrograde	2150 Sep 22 19:33	23°II10'20		retrograde	2158 Oct 01 10:33	1°☾26'17	
opposition	2150 Dec 14 06:28	22°II09'40	-9°00'00	opposition	2158 Dec 22 07:24	0°☾24'42	-6°-45'-4
min. Earth dist.	2150 Dec 15 05:06	22°II08'34	45.57717 AU	min. Earth dist.	2158 Dec 23 15:15	0°☾23'07	44.27583 AU
direct	2151 Mar 05 22:46	21°II09'08			2159 Jan 12 15:45	30°RII	
				direct	2159 Mar 13 20:59	29°II22'56	
conjunction	2151 Jun 13 20:37	22°II38'55	-8°-29'-48		2159 May 12 02:11	0°☾	
minimum elong	2151 Jun 13 20:47	22°II38'56	8°29'49	max. Earth dist.	2159 Jun 20 21:49	0°☾53'18	46.17384 AU
max. Earth dist.	2151 Jun 12 19:36	22°II37'27	47.48138 AU				
retrograde	2151 Sep 24 02:55	24°II10'53		conjunction	2159 Jun 22 10:45	0°☾55'30	-6°-19'00
opposition	2151 Dec 15 11:58	23°II10'09	-8°-44'-3	minimum elong	2159 Jun 22 10:54	0°☾55'31	6°19'00
min. Earth dist.	2151 Dec 16 10:46	23°II09'02	45.42896 AU	retrograde	2159 Oct 02 20:33	2°☾29'50	
direct	2152 Mar 06 04:05	22°II09'30		opposition	2159 Dec 23 14:02	1°☾28'04	-6°-27'00
max. Earth dist.	2152 Jun 13 00:56	23°II38'02	47.33299 AU	min. Earth dist.	2159 Dec 24 23:16	1°☾26'25	44.09426 AU
				direct	2160 Mar 14 02:32	0°☾26'05	
conjunction	2152 Jun 14 03:50	23°II39'37	-8°-14'-19	max. Earth dist.	2160 Jun 21 05:57	1°☾56'48	45.99181 AU
minimum elong	2152 Jun 14 04:00	23°II39'37	8°14'20				
retrograde	2152 Sep 24 13:49	25°II11'52		conjunction	2160 Jun 22 19:17	1°☾59'03	-6°-1'-31
opposition	2152 Dec 15 17:50	24°II11'02	-8°-27'-50	minimum elong	2160 Jun 22 19:25	1°☾59'03	6°01'32
min. Earth dist.	2152 Dec 16 18:40	24°II09'50	45.27756 AU	retrograde	2160 Oct 03 02:13	3°☾33'42	
direct	2153 Mar 07 05:52	23°II10'17		opposition	2160 Dec 23 20:57	2°☾31'46	-6°-8'-40
max. Earth dist.	2153 Jun 14 08:03	24°II39'09	47.18112 AU	min. Earth dist.	2160 Dec 25 07:18	2°☾30'03	43.90970 AU
				direct	2161 Mar 15 11:29	1°☾29'34	
conjunction	2153 Jun 15 11:11	24°II40'44	-7°-58'-35	max. Earth dist.	2161 Jun 22 13:21	3°☾00'36	45.80720 AU
minimum elong	2153 Jun 15 11:20	24°II40'45	7°58'35				
retrograde	2153 Sep 25 21:04	26°II13'17		conjunction	2161 Jun 24 03:42	3°☾02'55	-5°-43'-46
opposition	2153 Dec 16 23:41	25°II12'23	-8°-11'-21	minimum elong	2161 Jun 24 03:50	3°☾02'55	5°43'46
min. Earth dist.	2153 Dec 18 01:00	25°II11'09	45.12226 AU	retrograde	2161 Oct 04 08:31	4°☾37'55	
direct	2154 Mar 08 11:33	24°II11'30		opposition	2161 Dec 25 03:56	3°☾35'48	-5°-50'-2
				min. Earth dist.	2161 Dec 26 14:23	3°☾34'05	43.72283 AU
conjunction	2154 Jun 16 18:39	25°II42'19	-7°-42'-36	direct	2162 Mar 16 20:13	2°☾33'24	
minimum elong	2154 Jun 16 18:50	25°II42'19	7°42'37	max. Earth dist.	2162 Jun 23 20:34	4°☾04'45	45.62025 AU
max. Earth dist.	2154 Jun 15 13:08	25°II40'34	47.02506 AU				
retrograde	2154 Sep 27 04:40	27°II15'09		conjunction	2162 Jun 25 12:26	4°☾07'10	-5°-25'-45
opposition	2154 Dec 18 05:43	26°II14'09	-7°-54'-36	minimum elong	2162 Jun 25 12:33	4°☾07'11	5°25'46
min. Earth dist.	2154 Dec 19 08:40	26°II12'50	44.96260 AU	retrograde	2162 Oct 05 17:52	5°☾42'34	
direct	2155 Mar 09 17:51	25°II13'08		opposition	2162 Dec 26 11:11	4°☾40'17	-5°-31'-7
max. Earth dist.	2155 Jun 16 19:56	26°II42'29	46.86417 AU	min. Earth dist.	2162 Dec 27 23:22	4°☾38'27	43.53386 AU
				direct	2163 Mar 18 02:00	3°☾37'41	
conjunction	2155 Jun 18 02:29	26°II44'18	-7°-26'-22	max. Earth dist.	2163 Jun 25 05:35	5°☾09'28	45.43133 AU
minimum elong	2155 Jun 18 02:38	26°II44'18	7°26'22				
retrograde	2155 Sep 28 09:16	28°II17'26		conjunction	2163 Jun 26 21:26	5°☾11'53	-5°-7'-27
opposition	2155 Dec 19 12:02	27°II16'18	-7°-37'-37	minimum elong	2163 Jun 26 21:34	5°☾11'54	5°07'28
min. Earth dist.	2155 Dec 20 16:44	27°II14'53	44.79786 AU	retrograde	2163 Oct 07 03:23	6°☾47'41	
direct	2156 Mar 10 03:20	26°II15'08		opposition	2163 Dec 27 18:33	5°☾45'15	-5°-11'-55
max. Earth dist.	2156 Jun 17 02:11	27°II44'44	46.69834 AU	min. Earth dist.	2163 Dec 29 06:38	5°☾43'26	43.34274 AU
				direct	2164 Mar 18 08:16	4°☾42'27	
conjunction	2156 Jun 18 10:25	27°II46'38	-7°-9'-54	max. Earth dist.	2164 Jun 25 12:41	6°☾14'36	45.24007 AU
minimum elong	2156 Jun 18 10:34	27°II46'39	7°09'55				
retrograde	2156 Sep 28 16:13	29°II20'04		conjunction	2164 Jun 27 06:36	6°☾17'09	-4°-48'-54
opposition	2156 Dec 19 18:15	28°II18'48	-7°-20'-21	minimum elong	2164 Jun 27 06:43	6°☾17'09	4°48'54
min. Earth dist.	2156 Dec 20 23:30	28°II17'22	44.62825 AU	retrograde	2164 Oct 07 14:40	7°☾53'22	
direct	2157 Mar 11 10:18	27°II17'27		opposition	2164 Dec 28 02:07	6°☾50'47	-4°-52'-25

min. Earth dist.	2164 Dec 29 15:45	6°☾48'53	43.14924 AU	conjunction	2173 Jul 08 05:05	16°☾32'35	-1°-49'-58
direct	2165 Mar 19 14:16	5°☾47'49		minimum elong	2173 Jul 08 05:08	16°☾32'35	1°49'59
max. Earth dist.	2165 Jun 26 21:54	7°☾20'26	45.04601 AU	retrograde	2173 Oct 18 09:54	18°☾13'17	
				opposition	2174 Jan 07 09:05	17°☾08'54	-1°-44'-13
conjunction	2165 Jun 28 16:09	7°☾23'01	-4°-30'-4	min. Earth dist.	2174 Jan 09 08:02	17°☾06'26	41.24415 AU
minimum elong	2165 Jun 28 16:16	7°☾23'02	4°30'05	direct	2174 Mar 29 22:04	16°☾03'43	
retrograde	2165 Oct 08 22:48	8°☾59'42		max. Earth dist.	2174 Jul 07 10:18	17°☾40'36	43.13222 AU
opposition	2165 Dec 29 10:01	7°☾56'58	-4°-32'-38				
min. Earth dist.	2165 Dec 31 00:48	7°☾55'00	42.95262 AU	conjunction	2174 Jul 09 16:40	17°☾44'05	-1°-28'-46
direct	2166 Mar 21 00:00	6°☾53'48		minimum elong	2174 Jul 09 16:42	17°☾44'05	1°28'46
max. Earth dist.	2166 Jun 28 05:51	8°☾26'50	44.84860 AU	retrograde	2174 Oct 19 23:44	19°☾25'23	
				opposition	2175 Jan 08 19:13	18°☾20'46	-1°-21'-52
conjunction	2166 Jun 30 01:44	8°☾29'33	-4°-10'-58	min. Earth dist.	2175 Jan 10 19:44	18°☾18'13	41.01887 AU
minimum elong	2166 Jun 30 01:50	8°☾29'33	4°10'59	direct	2175 Mar 31 05:33	17°☾15'18	
retrograde	2166 Oct 10 08:22	10°☾06'41		max. Earth dist.	2175 Jul 08 22:39	18°☾52'51	42.90648 AU
opposition	2166 Dec 30 18:04	9°☾03'48	-4°-12'-34				
min. Earth dist.	2167 Jan 01 09:30	9°☾01'48	42.75234 AU	conjunction	2175 Jul 11 04:52	18°☾56'20	-1°-7'-18
direct	2167 Mar 22 08:31	8°☾00'26		minimum elong	2175 Jul 11 04:54	18°☾56'21	1°07'19
max. Earth dist.	2167 Jun 29 14:08	9°☾33'53	44.64697 AU	retrograde	2175 Oct 21 13:15	20°☾38'14	
				opposition	2176 Jan 10 05:29	19°☾33'24	0°-59'-14
conjunction	2167 Jul 01 11:52	9°☾36'43	-3°-51'-37	min. Earth dist.	2176 Jan 12 06:21	19°☾30'49	40.79208 AU
minimum elong	2167 Jul 01 11:58	9°☾36'43	3°51'38	direct	2176 Mar 31 15:34	18°☾27'39	
retrograde	2167 Oct 11 17:40	11°☾14'21		max. Earth dist.	2176 Jul 09 09:19	20°☾05'47	42.67923 AU
opposition	2168 Jan 01 02:25	10°☾11'17	-3°-52'-14				
min. Earth dist.	2168 Jan 02 20:07	10°☾09'09	42.54774 AU	conjunction	2176 Jul 11 17:15	20°☾09'25	0°-45'-34
direct	2168 Mar 22 16:20	9°☾07'42		minimum elong	2176 Jul 11 17:16	20°☾09'25	0°45'35
max. Earth dist.	2168 Jun 29 23:51	10°☾41'38	44.44103 AU	retrograde	2176 Oct 22 04:14	21°☾51'56	
				opposition	2177 Jan 10 16:10	20°☾46'53	0°-36'-19
conjunction	2168 Jul 01 22:16	10°☾44'31	-3°-31'-59	min. Earth dist.	2177 Jan 12 17:45	20°☾44'15	40.56373 AU
minimum elong	2168 Jul 01 22:21	10°☾44'32	3°32'00	direct	2177 Apr 02 01:30	19°☾40'52	
retrograde	2168 Oct 12 04:48	12°☾22'38		max. Earth dist.	2177 Jul 10 21:17	21°☾19'40	42.44988 AU
opposition	2169 Jan 01 10:57	11°☾19'24	-3°-31'-36				
min. Earth dist.	2169 Jan 03 05:03	11°☾17'14	42.33881 AU	conjunction	2177 Jul 13 05:57	21°☾23'22	0°-23'-35
direct	2169 Mar 23 23:47	10°☾15'34		minimum elong	2177 Jul 13 05:58	21°☾23'22	0°23'37
max. Earth dist.	2169 Jul 01 07:38	11°☾49'53	44.23077 AU	retrograde	2177 Oct 23 14:47	23°☾06'34	
				opposition	2178 Jan 12 03:15	22°☾01'16	0°-13'-7
conjunction	2169 Jul 03 08:36	11°☾52'56	-3°-12'-7	min. Earth dist.	2178 Jan 14 06:25	21°☾58'32	40.33306 AU
minimum elong	2169 Jul 03 08:41	11°☾52'57	3°12'08	direct	2178 Apr 03 13:43	20°☾54'59	
retrograde	2169 Oct 13 18:28	13°☾31'33		max. Earth dist.	2178 Jul 12 09:40	22°☾34'27	42.21799 AU
opposition	2170 Jan 02 19:47	12°☾28'05	-3°-10'-42				
min. Earth dist.	2170 Jan 04 15:43	12°☾25'50	42.12589 AU	conjunction	2178 Jul 14 19:07	22°☾38'14	0°-1'-22
direct	2170 Mar 25 05:41	11°☾24'00		minimum elong	2178 Jul 14 19:08	22°☾38'14	0°01'23
max. Earth dist.	2170 Jul 02 18:06	12°☾58'51	44.01663 AU	behind sun begin	2178 Jul 14 12:36	22°☾37'50	
				behind sun end	2178 Jul 15 01:39	22°☾38'38	
conjunction	2170 Jul 04 19:26	13°☾01'57	-2°-51'-58	asc. node	2178 Aug 05 18:59	23°☾12'21	
minimum elong	2170 Jul 04 19:30	13°☾01'57	2°51'59	retrograde	2178 Oct 25 02:27	24°☾22'06	
retrograde	2170 Oct 15 04:14	14°☾41'03		opposition	2179 Jan 13 14:27	23°☾16'35	0°10'20
opposition	2171 Jan 04 04:43	13°☾37'23	-2°-49'-31	min. Earth dist.	2179 Jan 15 17:58	23°☾13'49	40.09957 AU
min. Earth dist.	2171 Jan 06 01:34	13°☾35'04	41.90934 AU	direct	2179 Apr 05 01:45	22°☾10'00	
direct	2171 Mar 26 15:38	12°☾33'01		max. Earth dist.	2179 Jul 13 20:57	23°☾50'04	41.98273 AU
max. Earth dist.	2171 Jul 04 03:20	14°☾08'20	43.79923 AU				
				conjunction	2179 Jul 16 08:47	23°☾54'02	0°21'10
conjunction	2171 Jul 06 06:22	14°☾11'33	-2°-31'-34	minimum elong	2179 Jul 16 08:47	23°☾54'01	0°21'10
minimum elong	2171 Jul 06 06:26	14°☾11'33	2°31'36	retrograde	2179 Oct 26 16:52	25°☾38'36	
retrograde	2171 Oct 16 13:51	15°☾51'09		opposition	2180 Jan 15 02:18	24°☾32'49	0°34'05
opposition	2172 Jan 05 13:53	14°☾47'15	-2°-28'-2	min. Earth dist.	2180 Jan 17 08:00	24°☾29'55	39.86262 AU
min. Earth dist.	2172 Jan 07 11:27	14°☾44'53	41.68990 AU	direct	2180 Apr 05 10:37	23°☾25'55	
direct	2172 Mar 27 02:50	13°☾42'37		max. Earth dist.	2180 Jul 14 10:41	25°☾06'43	41.74383 AU
max. Earth dist.	2172 Jul 04 13:20	15°☾18'26	43.57888 AU				
				conjunction	2180 Jul 16 22:52	25°☾10'43	0°43'54
conjunction	2172 Jul 06 17:38	15°☾21'45	-2°-10'-54	minimum elong	2180 Jul 16 22:51	25°☾10'43	0°43'54
minimum elong	2172 Jul 06 17:41	15°☾21'45	2°10'54	retrograde	2180 Oct 27 06:45	26°☾56'00	
retrograde	2172 Oct 16 22:51	17°☾01'53		opposition	2181 Jan 15 14:23	25°☾49'56	0°58'07
opposition	2173 Jan 05 23:23	15°☾57'45	-2°-6'-16	min. Earth dist.	2181 Jan 17 20:31	25°☾47'00	39.62203 AU
min. Earth dist.	2173 Jan 07 22:37	15°☾55'17	41.46793 AU	direct	2181 Apr 06 22:29	24°☾42'42	
direct	2173 Mar 28 13:20	14°☾52'51		max. Earth dist.	2181 Jul 15 22:41	26°☾24'07	41.50141 AU
max. Earth dist.	2173 Jul 06 00:33	16°☾29'13	43.35644 AU				

conjunction	2181 Jul 18 13:10	26° 28 '18	1°06'53	max. Earth dist.	2189 Jul 27 01:10	7° 18 '54	39.49262 AU
minimum elong	2181 Jul 18 13:09	26° 28 '18	1°06'53				
retrograde	2181 Oct 28 23:42	28° 28 '14'17		conjunction	2189 Jul 29 22:21	7° 18 '23'49	4°18'40
opposition	2182 Jan 17 02:51	27° 28 '07'56	1°22'24	minimum elong	2189 Jul 29 22:13	7° 18 '23'48	4°18'41
min. Earth dist.	2182 Jan 19 10:25	27° 28 '04'55	39.37825 AU	retrograde	2189 Nov 09 11:33	9° 18 '16'31	
direct	2182 Apr 08 09:44	26° 28 '00'21		opposition	2190 Jan 27 20:59	8° 18 '07'38	4°45'27
max. Earth dist.	2182 Jul 17 12:44	27° 28 '42'30	41.25572 AU	min. Earth dist.	2190 Jan 30 10:55	8° 18 '04'06	37.37097 AU
				direct	2190 Apr 19 02:08	6° 18 '57'05	
conjunction	2182 Jul 20 03:55	27° 28 '46'46	1°30'07	max. Earth dist.	2190 Jul 28 19:06	8° 18 '46'09	39.23817 AU
minimum elong	2182 Jul 20 03:52	27° 28 '46'45	1°30'06				
retrograde	2182 Oct 30 14:10	29° 28 '33'29		conjunction	2190 Jul 31 16:35	8° 18 '51'08	4°43'29
opposition	2183 Jan 18 15:46	28° 28 '26'48	1°46'57	minimum elong	2190 Jul 31 16:26	8° 18 '51'08	4°43'29
min. Earth dist.	2183 Jan 21 00:40	28° 28 '23'41	39.13147 AU	retrograde	2190 Nov 11 04:50	10° 18 '44'49	
direct	2183 Apr 10 00:16	27° 28 '18'51		opposition	2191 Jan 29 13:20	9° 18 '35'38	5°11'45
max. Earth dist.	2183 Jul 19 02:39	29° 28 '01'44	41.00740 AU	min. Earth dist.	2191 Feb 01 03:08	9° 18 '32'05	37.11706 AU
				direct	2191 Apr 20 18:25	8° 18 '24'42	
conjunction	2183 Jul 21 19:02	29° 28 '06'06	1°53'34	max. Earth dist.	2191 Jul 30 12:00	10° 18 '41'41	38.98211 AU
minimum elong	2183 Jul 21 18:59	29° 28 '06'06	1°53'34				
	2183 Aug 25 07:10	0° 18 '		conjunction	2191 Aug 02 11:32	10° 18 '19'52	5°08'26
retrograde	2183 Nov 01 05:17	0° 18 '53'34		minimum elong	2191 Aug 02 11:22	10° 18 '19'51	5°08'27
	2184 Jan 09 23:27	30° 18 ' 28		retrograde	2191 Nov 12 23:36	12° 18 '14'33	
opposition	2184 Jan 20 04:47	29° 28 '46'35	2°11'46	opposition	2192 Jan 31 06:18	11° 18 '05'02	5°38'14
min. Earth dist.	2184 Jan 22 13:56	29° 28 '43'26	38.88249 AU	min. Earth dist.	2192 Feb 02 22:00	11° 18 '01'21	36.86157 AU
direct	2184 Apr 10 14:13	28° 28 '38'15		direct	2192 Apr 21 08:29	9° 18 '53'42	
	2184 Jul 06 05:41	0° 18 '		max. Earth dist.	2192 Jul 31 07:41	11° 18 '44'46	38.72429 AU
max. Earth dist.	2184 Jul 19 16:39	0° 18 '21'51	40.75689 AU				
conjunction	2184 Jul 22 10:34	0° 18 '26'22	2°17'15	conjunction	2192 Aug 03 07:06	11° 18 '49'59	5°33'32
minimum elong	2184 Jul 22 10:30	0° 18 '26'22	2°17'14	minimum elong	2192 Aug 03 06:55	11° 18 '49'58	5°33'31
retrograde	2184 Nov 01 18:59	2° 18 '14'37		retrograde	2192 Nov 13 19:22	13° 18 '14'51	
opposition	2185 Jan 20 18:29	1° 18 '07'18	2°36'49	opposition	2193 Jan 31 23:53	12° 18 '35'49	6°04'53
min. Earth dist.	2185 Jan 23 05:21	1° 18 '04'02	38.63184 AU	min. Earth dist.	2193 Feb 03 15:47	12° 18 '32'06	36.60433 AU
	2185 Apr 01 12:34	30° 18 ' 28		direct	2193 Apr 23 00:19	11° 18 '24'04	
direct	2185 Apr 12 02:59	29° 28 '58'35		max. Earth dist.	2193 Aug 02 01:29	13° 18 '16'04	38.46476 AU
	2185 Apr 22 14:28	0° 18 '					
max. Earth dist.	2185 Jul 21 08:39	1° 18 '43'04	40.50505 AU	conjunction	2193 Aug 05 02:52	13° 18 '21'28	5°58'45
				minimum elong	2193 Aug 05 02:41	13° 18 '21'27	5°58'45
conjunction	2185 Jul 24 02:19	1° 18 '47'35	2°41'09		2193 Oct 10 00:30	15° 18 '	
minimum elong	2185 Jul 24 02:14	1° 18 '47'35	2°41'09	retrograde	2193 Nov 15 17:25	15° 18 '18'13	
retrograde	2185 Nov 03 10:25	3° 18 '36'40			2193 Dec 22 20:06	15° 18 ' 28	
opposition	2186 Jan 22 08:27	2° 18 '29'01	3°02'07	opposition	2194 Feb 02 17:58	14° 18 '07'57	6°31'39
min. Earth dist.	2186 Jan 24 19:03	2° 18 '25'45	38.38022 AU	min. Earth dist.	2194 Feb 05 10:58	14° 18 '04'10	36.34571 AU
direct	2186 Apr 13 15:58	1° 18 '19'56		direct	2194 Apr 24 15:56	12° 18 '55'46	
max. Earth dist.	2186 Jul 22 23:00	3° 18 '05'10	40.25241 AU	max. Earth dist.	2194 Aug 03 21:50	14° 18 '48'51	38.20376 AU
conjunction	2186 Jul 25 18:32	3° 18 '09'51	3°05'15	conjunction	2194 Aug 06 23:33	14° 18 '54'19	6°24'04
minimum elong	2186 Jul 25 18:26	3° 18 '09'51	3°05'14	minimum elong	2194 Aug 06 23:21	14° 18 '54'18	6°24'03
retrograde	2186 Nov 05 04:55	4° 18 '59'47			2194 Aug 10 04:01	15° 18 '	
opposition	2187 Jan 23 22:48	3° 18 '51'49	3°27'38	retrograde	2194 Nov 17 14:41	16° 18 '52'06	
min. Earth dist.	2187 Jan 26 10:39	3° 18 '48'28	38.12826 AU	opposition	2195 Feb 04 12:32	15° 18 '41'27	6°58'33
direct	2187 Apr 15 02:56	2° 18 '42'21		min. Earth dist.	2195 Feb 07 06:32	15° 18 '37'34	36.08594 AU
max. Earth dist.	2187 Jul 24 16:07	4° 18 '28'33	39.99941 AU		2195 Mar 07 18:18	15° 18 ' 28	
				direct	2195 Apr 26 12:04	14° 18 '28'48	
conjunction	2187 Jul 27 11:25	4° 18 '33'15	3°29'33		2195 Jun 14 11:28	15° 18 '	
minimum elong	2187 Jul 27 11:19	4° 18 '33'15	3°29'33	max. Earth dist.	2195 Aug 05 18:03	16° 18 '22'56	37.94197 AU
retrograde	2187 Nov 06 22:03	6° 18 '24'04					
opposition	2188 Jan 25 13:45	5° 18 '15'47	3°53'22	conjunction	2195 Aug 08 20:41	16° 18 '28'32	6°49'27
min. Earth dist.	2188 Jan 28 01:53	5° 18 '12'24	37.87606 AU	minimum elong	2195 Aug 08 20:27	16° 18 '28'31	6°49'27
direct	2188 Apr 15 18:02	4° 18 '05'57		retrograde	2195 Nov 19 14:00	18° 18 '27'21	
max. Earth dist.	2188 Jul 25 08:08	5° 18 '53'03	39.74626 AU	opposition	2196 Feb 06 07:38	17° 18 '16'17	7°25'32
				min. Earth dist.	2196 Feb 09 01:37	17° 18 '12'23	35.82581 AU
conjunction	2188 Jul 28 04:33	5° 18 '57'52	3°54'01	direct	2196 Apr 27 08:38	16° 18 '03'10	
minimum elong	2188 Jul 28 04:25	5° 18 '57'52	3°54'01	max. Earth dist.	2196 Aug 06 14:47	17° 18 '58'23	37.67981 AU
retrograde	2188 Nov 07 17:27	7° 18 '49'36					
opposition	2189 Jan 26 05:03	6° 18 '41'01	4°19'19	conjunction	2196 Aug 09 18:21	18° 18 '04'06	7°14'53
min. Earth dist.	2189 Jan 28 17:28	6° 18 '37'36	37.62380 AU	minimum elong	2196 Aug 09 18:07	18° 18 '04'05	7°14'53
direct	2189 Apr 17 10:09	5° 18 '30'50		retrograde	2196 Nov 20 10:54	20° 18 '04'01	
				opposition	2197 Feb 07 03:29	18° 18 '52'31	7°52'34

min. Earth dist.	2197 Feb 09 22:54	18°048'30	35.56587 AU	retrograde	2204 Dec 05 20:36	3°05'56"10	
direct	2197 Apr 29 03:54	17°038'55		opposition	2205 Feb 21 18:11	2°04'41"31	11°26'30
max. Earth dist.	2197 Aug 08 13:27	19°035'19	37.41828 AU	min. Earth dist.	2205 Feb 24 14:28	2°05'37"14	33.55016 AU
				direct	2205 May 13 10:37	1°05'24"17	
conjunction	2197 Aug 11 16:36	19°041'03	7°40'21	max. Earth dist.	2205 Aug 23 21:23	3°05'31"06	35.38917 AU
minimum elong	2197 Aug 11 16:20	19°041'02	7°40'21				
retrograde	2197 Nov 22 07:30	21°042'05		conjunction	2205 Aug 27 03:17	3°05'37"32	11°00'25
opposition	2198 Feb 08 23:46	20°030'11	8°19'37	minimum elong	2205 Aug 27 02:55	3°05'37"30	11°00'25
min. Earth dist.	2198 Feb 11 18:30	20°026'10	35.30702 AU	retrograde	2205 Dec 08 01:26	5°05'48"43	
direct	2198 May 01 00:24	19°016'05		opposition	2206 Feb 23 20:27	4°05'33"39	11°52'23
max. Earth dist.	2198 Aug 10 10:52	21°013'35	37.15797 AU	min. Earth dist.	2206 Feb 26 17:48	4°05'29"16	33.30561 AU
				direct	2206 May 15 09:06	3°05'15"56	
conjunction	2198 Aug 13 15:22	21°019'29	8°05'47	max. Earth dist.	2206 Aug 26 03:06	5°05'24"15	35.14245 AU
minimum elong	2198 Aug 13 15:06	21°019'28	8°05'47				
retrograde	2198 Nov 24 06:38	23°021'40		conjunction	2206 Aug 29 08:08	5°05'30"40	11°24'26
opposition	2199 Feb 10 20:52	22°009'20	8°46'40	minimum elong	2206 Aug 29 07:47	5°05'30"38	11°24'27
min. Earth dist.	2199 Feb 13 16:32	22°005'14	35.04988 AU	retrograde	2206 Dec 10 05:38	7°05'43"13	
direct	2199 May 02 18:13	20°054'45		opposition	2207 Feb 25 23:34	6°05'27"44	12°17'56
max. Earth dist.	2199 Aug 12 11:27	22°053'35	36.89951 AU	min. Earth dist.	2207 Feb 28 20:36	6°05'23"20	33.06268 AU
				direct	2207 May 17 11:36	5°05'09"32	
conjunction	2199 Aug 15 15:00	22°059'27	8°31'10	max. Earth dist.	2207 Aug 28 07:33	7°05'19"11	34.89767 AU
minimum elong	2199 Aug 15 14:42	22°059'26	8°31'10				
retrograde	2199 Nov 26 05:50	25°002'49		conjunction	2207 Aug 31 13:35	7°05'25"45	11°48'06
opposition	2200 Feb 12 18:33	23°050'05	9°13'39	minimum elong	2207 Aug 31 13:12	7°05'25"43	11°48'06
min. Earth dist.	2200 Feb 15 13:51	23°046'00	34.79485 AU	retrograde	2207 Dec 12 13:14	9°05'39"40	
direct	2200 May 04 14:38	22°035'03		opposition	2208 Feb 28 03:21	8°05'23"45	12°43'05
max. Earth dist.	2200 Aug 14 10:41	24°035'06	36.64336 AU	min. Earth dist.	2208 Mar 02 00:30	8°05'19"19	32.82215 AU
				direct	2208 May 18 14:06	7°05'05"03	
conjunction	2200 Aug 17 15:08	24°041'05	8°56'28	max. Earth dist.	2208 Aug 29 14:47	9°05'16"14	34.65542 AU
minimum elong	2200 Aug 17 14:50	24°041'04	8°56'28				
retrograde	2200 Nov 28 08:44	26°045'42		conjunction	2208 Sep 01 19:56	9°05'22"47	12°11'19
opposition	2201 Feb 14 16:58	25°032'34	9°40'33	minimum elong	2208 Sep 01 19:34	9°05'22"45	12°11'19
min. Earth dist.	2201 Feb 17 12:22	25°028'27	34.54235 AU	retrograde	2208 Dec 13 19:31	11°05'38"03	
direct	2201 May 06 11:15	24°017'06		opposition	2209 Mar 01 08:10	10°05'21"41	13°07'46
max. Earth dist.	2201 Aug 16 11:55	26°018'30	36.38940 AU	min. Earth dist.	2209 Mar 04 05:32	10°05'17"13	32.58457 AU
				direct	2209 May 20 18:12	9°05'02"30	
conjunction	2201 Aug 19 15:58	26°024'31	9°21'38	max. Earth dist.	2209 Aug 31 21:41	11°05'15"08	34.41669 AU
minimum elong	2201 Aug 19 15:39	26°024'30	9°21'38				
retrograde	2201 Nov 30 10:56	28°030'24		conjunction	2209 Sep 04 02:41	11°05'21"44	12°34'02
opposition	2202 Feb 16 16:11	27°016'53	10°07'19	minimum elong	2209 Sep 04 02:17	11°05'21"42	12°34'02
min. Earth dist.	2202 Feb 19 12:14	27°012'42	34.29196 AU	retrograde	2209 Dec 16 04:50	13°05'38"23	
direct	2202 May 08 10:37	26°000'59		opposition	2210 Mar 03 13:36	12°05'21"34	13°31'54
max. Earth dist.	2202 Aug 18 13:20	28°003'44	36.13743 AU	min. Earth dist.	2210 Mar 06 09:53	12°05'17"08	32.35092 AU
				direct	2210 May 22 23:40	11°05'01"53	
conjunction	2202 Aug 21 17:36	28°009'50	9°46'39	max. Earth dist.	2210 Sep 03 05:52	13°05'16"00	34.18204 AU
minimum elong	2202 Aug 21 17:17	28°009'49	9°46'39				
	2202 Oct 29 13:22	0°05'00"00		conjunction	2210 Sep 06 10:29	13°05'22"38	12°56'12
retrograde	2202 Dec 02 15:13	0°05'17"01		minimum elong	2210 Sep 06 10:06	13°05'22"36	12°56'11
	2203 Jan 05 23:48	30°05'00"00		retrograde	2210 Dec 18 13:40	15°05'40"40	
opposition	2203 Feb 18 15:53	29°003'08	10°33'55	opposition	2211 Mar 05 19:56	14°05'23"25	13°55'24
min. Earth dist.	2203 Feb 21 11:26	28°058'57	34.04341 AU	min. Earth dist.	2211 Mar 08 16:38	14°05'18"56	32.12185 AU
direct	2203 May 10 10:34	27°046'48		direct	2211 May 25 05:42	13°05'03"15	
max. Earth dist.	2203 Aug 20 15:04	29°050'53	35.88679 AU	max. Earth dist.	2211 Sep 05 15:47	15°05'18"57	33.95254 AU
conjunction	2203 Aug 23 20:09	29°057'06	10°11'29	conjunction	2211 Sep 08 19:01	15°05'25"32	13°17'42
minimum elong	2203 Aug 23 19:48	29°057'04	10°11'29	minimum elong	2211 Sep 08 18:38	15°05'25"30	13°17'42
	2203 Aug 25 08:01	0°05'00"00		retrograde	2211 Dec 21 00:19	17°05'44"57	
retrograde	2203 Dec 04 17:26	2°05'05"36		opposition	2212 Mar 07 03:10	16°05'27"17	14°18'11
opposition	2204 Feb 20 16:42	0°05'51"21	11°00'19	min. Earth dist.	2212 Mar 09 22:05	16°05'22"53	31.89818 AU
min. Earth dist.	2204 Feb 23 13:37	0°05'47"03	33.79618 AU	direct	2212 May 26 13:25	15°05'06"39	
	2204 Mar 29 05:49	30°05'00"00		max. Earth dist.	2212 Sep 07 01:09	17°05'23"51	33.72863 AU
direct	2204 May 11 09:33	29°053'34					
	2204 Jun 22 19:17	0°05'00"00		conjunction	2212 Sep 10 04:14	17°05'30"29	13°38'29
max. Earth dist.	2204 Aug 21 18:52	1°05'40"05	35.63740 AU	minimum elong	2212 Sep 10 03:52	17°05'30"27	13°38'28
				retrograde	2212 Dec 22 09:18	19°05'51"19	
conjunction	2204 Aug 24 23:19	1°05'46"20	10°36'05	opposition	2213 Mar 09 11:22	18°05'33"15	14°40'10
minimum elong	2204 Aug 24 23:00	1°05'46"18	10°36'05	min. Earth dist.	2213 Mar 12 06:26	18°05'28"49	31.68035 AU

direct	2213 May 28 18:59	17° 17 12'11		direct	2221 Jun 15 13:10	5° 15 12'34	
max. Earth dist.	2213 Sep 09 13:24	19° 17 31'02	33.51076 AU	max. Earth dist.	2221 Sep 28 11:57	7° 15 43'10	31.97350 AU
conjunction	2213 Sep 12 14:26	19° 17 37'33	13°58'27	conjunction	2221 Oct 01 04:32	7° 15 49'20	16°01'40
minimum elong	2213 Sep 12 14:02	19° 17 37'31	13°58'27	minimum elong	2221 Oct 01 04:15	7° 15 49'19	16°01'41
retrograde	2213 Dec 24 19:14	21° 17 59'48		retrograde	2222 Jan 12 16:37	10° 16 22'02	
opposition	2214 Mar 11 20:16	20° 17 41'22	15°01'17	opposition	2222 Mar 30 04:31	9° 16 00'43	17°10'14
min. Earth dist.	2214 Mar 14 13:53	20° 17 37'00	31.46839 AU	min. Earth dist.	2222 Apr 01 15:05	8° 16 56'39	29.97559 AU
direct	2214 May 31 03:06	19° 17 19'54		direct	2222 Jun 18 03:17	7° 16 36'09	
max. Earth dist.	2214 Sep 12 00:10	21° 17 40'12	33.29875 AU	max. Earth dist.	2222 Oct 01 07:50	10° 16 08'11	31.81161 AU
conjunction	2214 Sep 15 01:23	21° 17 46'48	14°17'34	conjunction	2222 Oct 03 21:26	10° 16 14'08	16°11'22
minimum elong	2214 Sep 15 01:01	21° 17 46'46	14°17'35	minimum elong	2222 Oct 03 21:13	10° 16 14'06	16°11'22
retrograde	2214 Dec 27 07:56	24° 17 10'28		retrograde	2223 Jan 15 10:09	12° 16 47'54	
opposition	2215 Mar 14 06:11	22° 17 51'41	15°21'28	opposition	2223 Apr 01 21:13	11° 16 26'16	17°20'05
min. Earth dist.	2215 Mar 16 23:30	22° 17 47'19	31.26215 AU	min. Earth dist.	2223 Apr 04 05:16	11° 16 22'22	29.81966 AU
direct	2215 Jun 02 09:31	21° 17 29'48		direct	2223 Jun 20 20:26	10° 16 01'24	
max. Earth dist.	2215 Sep 14 14:04	23° 17 51'46	33.09223 AU	max. Earth dist.	2223 Oct 04 02:19	12° 16 34'38	31.65875 AU
conjunction	2215 Sep 17 13:20	23° 17 58'15	14°35'46	conjunction	2223 Oct 06 14:44	12° 16 40'29	16°19'30
minimum elong	2215 Sep 17 12:57	23° 17 58'13	14°35'46	minimum elong	2223 Oct 06 14:31	12° 16 40'28	16°19'31
retrograde	2215 Dec 29 19:08	26° 17 23'19		retrograde	2224 Jan 18 04:32	15° 16 15'20	
opposition	2216 Mar 15 17:06	25° 17 04'10	15°40'38	opposition	2224 Apr 03 14:40	13° 16 53'24	17°28'14
min. Earth dist.	2216 Mar 18 09:40	24° 17 59'49	31.06115 AU	min. Earth dist.	2224 Apr 05 21:06	13° 16 49'35	29.67313 AU
direct	2216 Jun 03 19:05	23° 17 41'54		direct	2224 Jun 22 11:28	12° 16 28'14	
max. Earth dist.	2216 Sep 16 02:50	26° 17 05'18	32.89117 AU	max. Earth dist.	2224 Oct 05 23:54	15° 16 02'50	31.51590 AU
conjunction	2216 Sep 19 01:57	26° 17 11'50	14°52'59	conjunction	2224 Oct 08 08:44	15° 16 08'24	16°26'00
minimum elong	2216 Sep 19 01:36	26° 17 11'48	14°52'59	minimum elong	2224 Oct 08 08:35	15° 16 08'23	16°26'00
retrograde	2216 Dec 31 09:37	28° 17 38'17		retrograde	2225 Jan 19 21:27	17° 16 44'14	
opposition	2217 Mar 18 04:52	27° 17 18'46	15°58'44	opposition	2225 Apr 06 08:49	16° 16 22'03	17°34'35
min. Earth dist.	2217 Mar 20 20:21	27° 17 14'29	30.86554 AU	min. Earth dist.	2225 Apr 08 12:48	16° 16 18'24	29.53648 AU
direct	2217 Jun 06 05:56	25° 17 56'06		direct	2225 Jun 25 05:21	14° 16 56'40	
max. Earth dist.	2217 Sep 18 17:54	28° 17 21'05	32.69543 AU	max. Earth dist.	2225 Oct 08 19:39	17° 16 32'22	31.38356 AU
conjunction	2217 Sep 21 15:25	28° 17 27'31	15°09'08	conjunction	2225 Oct 11 03:01	17° 16 37'49	16°30'48
minimum elong	2217 Sep 21 15:04	28° 17 27'29	15°09'08	minimum elong	2225 Oct 11 02:52	17° 16 37'48	16°30'49
retrograde	2217 Nov 05 09:00	0° 16 55'18		retrograde	2226 Jan 22 16:57	20° 16 14'35	
opposition	2218 Mar 05 09:56	30° 16 31'17	16°15'41	opposition	2226 Apr 09 03:32	18° 16 52'12	17°39'04
min. Earth dist.	2218 Mar 20 17:39	29° 16 35'25	30.67514 AU	min. Earth dist.	2226 Apr 11 05:06	18° 16 48'43	29.41015 AU
direct	2218 Mar 23 09:00	29° 16 31'07	30.67514 AU	direct	2226 Jun 27 22:17	17° 16 26'37	
max. Earth dist.	2218 Sep 03 18:13	0° 16 55'18		max. Earth dist.	2226 Oct 11 18:21	20° 16 03'36	31.26169 AU
conjunction	2218 Sep 24 05:40	0° 16 45'12	15°24'10	conjunction	2226 Oct 13 22:04	20° 16 08'43	16°33'51
minimum elong	2218 Sep 24 05:21	0° 16 45'10	15°24'09	minimum elong	2226 Oct 13 21:58	20° 16 08'42	16°33'50
retrograde	2219 Jan 05 15:18	3° 16 14'17		retrograde	2227 Jan 25 11:32	22° 16 46'21	
opposition	2219 Mar 23 07:01	1° 16 54'02	16°31'24	opposition	2227 Apr 11 22:56	21° 16 23'48	17°41'38
min. Earth dist.	2219 Mar 25 20:35	1° 16 49'50	30.49041 AU	min. Earth dist.	2227 Apr 13 22:48	21° 16 20'25	29.29384 AU
direct	2219 Jun 11 07:06	0° 16 30'35		direct	2227 Jun 30 15:44	19° 16 58'04	
max. Earth dist.	2219 Sep 24 01:08	2° 16 58'25	32.32117 AU	max. Earth dist.	2227 Oct 14 15:30	22° 16 36'02	31.15022 AU
conjunction	2219 Sep 26 20:45	3° 16 04'47	15°37'59	conjunction	2227 Oct 16 17:24	22° 16 41'00	16°35'06
minimum elong	2219 Sep 26 20:26	3° 16 04'45	15°37'59	minimum elong	2227 Oct 16 17:19	22° 16 40'59	16°35'06
retrograde	2220 Jan 08 07:06	5° 16 35'08		retrograde	2228 Jan 28 08:06	25° 16 19'26	
opposition	2220 Mar 24 21:32	4° 16 14'31	16°45'48	opposition	2228 Apr 13 18:57	23° 16 56'43	17°42'16
min. Earth dist.	2220 Mar 27 10:58	4° 16 10'18	30.31175 AU	min. Earth dist.	2228 Apr 15 15:49	23° 16 53'33	29.18754 AU
direct	2220 Jun 12 20:53	2° 16 50'41		direct	2228 Jul 02 11:27	22° 16 30'52	
max. Earth dist.	2220 Sep 25 18:39	5° 16 19'58	32.14371 AU	max. Earth dist.	2228 Oct 16 14:33	25° 16 09'53	31.04875 AU
conjunction	2220 Sep 28 12:15	5° 16 26'12	15°50'31	conjunction	2228 Oct 18 13:09	25° 16 14'32	16°34'32
minimum elong	2220 Sep 28 11:59	5° 16 26'10	15°50'31	minimum elong	2228 Oct 18 13:08	25° 16 14'32	16°34'31
retrograde	2221 Jan 10 00:15	7° 16 57'44		retrograde	2229 Jan 30 03:20	27° 16 53'40	
opposition	2221 Mar 27 12:40	6° 16 36'46	16°58'46	opposition	2229 Apr 16 15:39	26° 16 30'49	17°40'55
min. Earth dist.	2221 Mar 29 23:45	6° 16 32'42	30.13986 AU	min. Earth dist.	2229 Apr 18 11:08	26° 16 27'45	29.09081 AU
				direct	2229 Jul 05 07:35	25° 16 04'52	
				max. Earth dist.	2229 Oct 19 12:51	27° 16 44'41	30.95726 AU

conjunction	2229 Oct 21 09:16	27°♄49'08	16°32'07	direct	2237 Jul 26 18:49	15°♍54'48	
minimum elong	2229 Oct 21 09:16	27°♄49'08	16°32'07	max. Earth dist.	2237 Nov 10 10:03	18°♍37'33	30.60129 AU
	2229 Dec 23 19:08	0°♍					
retrograde	2230 Feb 02 00:53	0°♍28'52		conjunction	2237 Nov 11 05:05	18°♍39'28	15°05'22
	2230 Mar 15 18:23	30°♌♄		minimum elong	2237 Nov 11 05:23	18°♍39'30	15°05'22
opposition	2230 Apr 19 12:30	29°♄05'53	17°37'35	retrograde	2238 Feb 22 20:38	21°♍19'56	
min. Earth dist.	2230 Apr 21 04:42	29°♄03'03	29.00361 AU	opposition	2238 May 10 20:53	19°♍56'32	15°57'58
direct	2230 Jul 08 04:50	27°♄39'51		min. Earth dist.	2238 May 11 14:53	19°♍55'16	28.67659 AU
	2230 Oct 13 23:54	0°♍		direct	2238 Jul 29 17:07	18°♍30'36	
max. Earth dist.	2230 Oct 22 12:03	0°♍20'25	30.87546 AU	max. Earth dist.	2238 Nov 13 08:19	21°♍13'09	30.61039 AU
conjunction	2230 Oct 24 05:48	0°♍24'37	16°27'50	conjunction	2238 Nov 14 00:50	21°♍14'49	14°46'13
minimum elong	2230 Oct 24 05:52	0°♍24'38	16°27'50	minimum elong	2238 Nov 14 01:09	21°♍14'51	14°46'13
retrograde	2231 Feb 04 21:19	3°♍04'50		retrograde	2239 Feb 25 16:50	23°♍54'58	
opposition	2231 Apr 22 10:06	1°♍41'44	17°32'14	opposition	2239 May 13 18:50	22°♍31'40	15°36'35
min. Earth dist.	2231 Apr 24 00:57	1°♍39'00	28.92585 AU	min. Earth dist.	2239 May 14 08:39	22°♍30'42	28.68872 AU
direct	2231 Jul 11 01:40	0°♍15'39		direct	2239 Aug 01 14:59	21°♍05'56	
max. Earth dist.	2231 Oct 25 11:31	2°♍56'50	30.80361 AU				
				conjunction	2239 Nov 16 20:17	23°♍49'38	14°25'22
conjunction	2231 Oct 27 02:21	3°♍00'46	16°21'42	minimum elong	2239 Nov 16 20:38	23°♍49'40	14°25'22
minimum elong	2231 Oct 27 02:26	3°♍00'46	16°21'42	max. Earth dist.	2239 Nov 16 08:15	23°♍48'25	30.63184 AU
retrograde	2232 Feb 07 19:02	5°♍41'19		retrograde	2240 Feb 28 10:25	26°♍29'22	
opposition	2232 Apr 24 07:53	4°♍18'08	17°24'51	opposition	2240 May 15 16:46	25°♍06'13	15°13'24
min. Earth dist.	2232 Apr 25 19:19	4°♍15'37	28.85769 AU	min. Earth dist.	2240 May 16 04:15	25°♍05'25	28.71275 AU
direct	2232 Jul 13 01:43	2°♍51'59		direct	2240 Aug 03 12:42	23°♍40'44	
max. Earth dist.	2232 Oct 27 10:39	5°♍33'39	30.74176 AU				
				conjunction	2240 Nov 18 15:20	26°♍23'48	14°02'53
conjunction	2232 Oct 28 23:05	5°♍37'19	16°13'40	minimum elong	2240 Nov 18 15:41	26°♍23'51	14°02'53
minimum elong	2232 Oct 28 23:13	5°♍37'20	16°13'40	max. Earth dist.	2240 Nov 18 05:52	26°♍22'51	30.66524 AU
retrograde	2233 Feb 09 15:29	8°♍18'08		retrograde	2241 Mar 02 06:32	29°♍03'04	
opposition	2233 Apr 27 05:54	6°♍54'50	17°15'26	opposition	2241 May 18 14:11	27°♍40'05	14°48'31
min. Earth dist.	2233 Apr 28 15:34	6°♍52'28	28.79955 AU	min. Earth dist.	2241 May 18 21:29	27°♍39'34	28.74825 AU
direct	2233 Jul 15 22:59	5°♍28'39		direct	2241 Aug 06 10:04	26°♍14'50	
max. Earth dist.	2233 Oct 30 11:00	8°♍10'46	30.69050 AU				
				conjunction	2241 Nov 21 10:08	28°♍57'13	13°38'52
conjunction	2233 Oct 31 19:47	8°♍14'05	16°03'45	minimum elong	2241 Nov 21 10:31	28°♍57'15	13°38'52
minimum elong	2233 Oct 31 19:57	8°♍14'06	16°03'46	max. Earth dist.	2241 Nov 21 04:25	28°♍56'39	30.70980 AU
retrograde	2234 Feb 12 12:34	10°♍55'01			2241 Dec 18 05:17	0°♌♄	
opposition	2234 Apr 30 04:02	9°♍31'39	17°03'59	retrograde	2242 Mar 04 23:54	1°♌♄35'54	
min. Earth dist.	2234 May 01 10:20	9°♍29'30	28.75168 AU	opposition	2242 May 21 11:33	0°♌♄13'07	14°22'00
direct	2234 Jul 18 22:58	8°♍05'26		min. Earth dist.	2242 May 21 16:54	0°♌♄12'45	28.79455 AU
max. Earth dist.	2234 Nov 02 09:49	10°♍47'45	30.65009 AU	direct	2242 May 29 09:01	30°♌♍	
					2242 Aug 09 06:44	28°♍48'09	
conjunction	2234 Nov 03 16:21	10°♍50'51	15°51'57		2242 Oct 15 10:32	0°♌♄	
minimum elong	2234 Nov 03 16:33	10°♍50'52	15°51'57				
retrograde	2235 Feb 15 10:03	13°♍31'48		conjunction	2242 Nov 24 04:24	1°♌♄29'43	13°13'25
opposition	2235 May 03 02:14	12°♍08'21	16°50'30	minimum elong	2242 Nov 24 04:46	1°♌♄29'45	13°13'24
min. Earth dist.	2235 May 04 05:53	12°♍06'24	28.71488 AU	max. Earth dist.	2242 Nov 24 01:30	1°♌♄29'26	30.76508 AU
direct	2235 Jul 21 21:18	10°♍42'08		retrograde	2243 Mar 07 18:33	4°♌♄07'46	
max. Earth dist.	2235 Nov 05 10:42	13°♍24'45	30.62138 AU	opposition	2243 May 24 08:26	2°♌♄45'10	13°54'00
				min. Earth dist.	2243 May 24 09:50	2°♌♄45'04	28.85111 AU
conjunction	2235 Nov 06 12:52	13°♍27'24	15°38'17	direct	2243 Aug 12 05:44	1°♌♄20'29	
minimum elong	2235 Nov 06 13:06	13°♍27'26	15°38'17				
	2235 Dec 17 00:20	15°♍		conjunction	2243 Nov 26 22:17	4°♌♄01'10	12°46'37
retrograde	2236 Feb 18 04:57	16°♍08'17		minimum elong	2243 Nov 26 22:41	4°♌♄01'13	12°46'37
	2236 Apr 26 00:10	15°♌♍		max. Earth dist.	2243 Nov 26 22:27	4°♌♄01'12	30.83045 AU
opposition	2236 May 05 00:37	14°♍44'48	16°34'59	retrograde	2244 Mar 09 12:01	6°♌♄38'30	
min. Earth dist.	2236 May 06 00:59	14°♍43'05	28.68972 AU	opposition	2244 May 26 05:04	5°♌♄16'05	13°24'35
direct	2236 Jul 23 20:58	13°♍18'38		min. Earth dist.	2244 May 26 04:18	5°♌♄16'09	28.91770 AU
	2236 Oct 12 10:56	15°♍		direct	2244 Aug 14 01:40	3°♌♄51'42	
max. Earth dist.	2236 Nov 07 09:15	16°♍01'15	30.60497 AU				
				conjunction	2244 Nov 28 15:32	6°♌♄31'25	12°18'34
conjunction	2236 Nov 08 08:56	16°♍03'38	15°22'44	minimum elong	2244 Nov 28 15:55	6°♌♄31'27	12°18'34
minimum elong	2236 Nov 08 09:11	16°♍03'40	15°22'43	max. Earth dist.	2244 Nov 28 18:55	6°♌♄31'45	30.90575 AU
retrograde	2237 Feb 20 01:49	18°♍44'21		retrograde	2245 Mar 12 05:10	9°♌♄07'55	
opposition	2237 May 07 22:49	17°♍20'53	16°17'27	opposition	2245 May 29 01:03	7°♌♄45'43	12°53'54
min. Earth dist.	2237 May 08 19:35	17°♍19'25	28.67695 AU	min. Earth dist.	2245 May 28 20:48	7°♌♄46'01	28.99381 AU

direct	2245 Aug 16 23:51	6°♂21'38		minimum elong	2253 Dec 19 20:36	27°♂51'03	7°25'21
				max. Earth dist.	2253 Dec 21 02:13	27°♂53'50	32.02639 AU
conjunction	2245 Dec 01 08:14	9°♂00'17	11°49'22		2254 Feb 27 22:09	0°♂	
minimum elong	2245 Dec 01 08:39	9°♂00'19	11°49'23	retrograde	2254 Apr 02 04:15	0°♂18'07	
max. Earth dist.	2245 Dec 01 13:55	9°♂00'50	30.99050 AU		2254 May 06 14:18	30°♂♂	
retrograde	2246 Mar 14 22:58	11°♂35'54		min. Earth dist.	2254 Jun 19 01:26	29°♂00'20	30.12632 AU
opposition	2246 May 31 20:26	10°♂13'54	12°22'00	opposition	2254 Jun 20 08:28	28°♂58'18	7°36'09
min. Earth dist.	2246 May 31 13:35	10°♂14'22	29.07954 AU	direct	2254 Sep 08 16:49	27°♂37'26	
direct	2246 Aug 19 20:18	8°♂50'05			2254 Dec 20 04:31	0°♂	
conjunction	2246 Dec 04 00:22	11°♂27'37	11°19'07	conjunction	2254 Dec 22 06:40	0°♂04'40	6°50'00
minimum elong	2246 Dec 04 00:45	11°♂27'39	11°19'07	minimum elong	2254 Dec 22 06:56	0°♂04'41	6°50'00
max. Earth dist.	2246 Dec 04 09:46	11°♂28'32	31.08490 AU	max. Earth dist.	2254 Dec 23 14:51	0°♂07'39	32.19715 AU
retrograde	2247 Mar 17 13:37	14°♂02'16		retrograde	2255 Apr 04 15:19	2°♂30'37	
opposition	2247 Jun 03 15:22	12°♂40'29	11°49'02	opposition	2255 Jun 22 22:02	1°♂11'07	6°58'11
min. Earth dist.	2247 Jun 03 05:38	12°♂41'08	29.17485 AU	min. Earth dist.	2255 Jun 21 12:53	1°♂13'16	30.29810 AU
direct	2247 Aug 22 17:48	11°♂16'58			2255 Aug 17 14:25	30°♂♂	
conjunction	2247 Dec 06 15:30	13°♂53'18	10°47'54	direct	2255 Sep 11 05:17	29°♂50'41	
minimum elong	2247 Dec 06 15:53	13°♂53'20	10°47'54		2255 Oct 05 11:38	0°♂	
max. Earth dist.	2247 Dec 07 03:06	13°♂54'26	31.18902 AU	conjunction	2255 Dec 24 16:21	2°♂16'33	6°14'26
retrograde	2248 Mar 19 05:13	16°♂26'57		minimum elong	2255 Dec 24 16:36	2°♂16'34	6°14'26
opposition	2248 Jun 05 09:38	15°♂05'22	11°15'03	max. Earth dist.	2255 Dec 26 03:17	2°♂19'46	32.37495 AU
min. Earth dist.	2248 Jun 04 20:23	15°♂06'15	29.28034 AU	retrograde	2256 Apr 06 00:11	4°♂41'20	
direct	2248 Aug 24 12:26	13°♂42'10		min. Earth dist.	2256 Jun 22 23:25	3°♂24'28	30.47654 AU
conjunction	2248 Dec 08 06:10	16°♂17'15	10°15'47	opposition	2256 Jun 24 10:46	3°♂22'11	6°20'03
minimum elong	2248 Dec 08 06:32	16°♂17'17	10°15'47	direct	2256 Sep 12 19:40	2°♂02'09	
max. Earth dist.	2248 Dec 08 22:00	16°♂18'47	31.30337 AU	conjunction	2256 Dec 26 01:19	4°♂26'40	5°38'45
retrograde	2249 Mar 21 18:20	18°♂49'51		minimum elong	2256 Dec 26 01:33	4°♂26'42	5°38'45
min. Earth dist.	2249 Jun 07 11:24	17°♂29'33	29.39620 AU	max. Earth dist.	2256 Dec 27 13:31	4°♂29'59	32.55885 AU
opposition	2249 Jun 08 03:07	17°♂28'30	10°40'11	retrograde	2257 Apr 08 10:23	6°♂50'17	
direct	2249 Aug 27 08:29	16°♂05'38		min. Earth dist.	2257 Jun 25 08:48	5°♂33'53	30.66121 AU
conjunction	2249 Dec 10 19:58	18°♂39'27	9°42'53	opposition	2257 Jun 26 22:37	5°♂31'27	5°41'52
minimum elong	2249 Dec 10 20:20	18°♂39'29	9°42'53	direct	2257 Sep 15 08:01	4°♂11'49	
max. Earth dist.	2249 Dec 11 13:52	18°♂41'10	31.42817 AU	conjunction	2257 Dec 28 09:45	6°♂34'59	5°03'01
retrograde	2250 Mar 24 08:49	21°♂10'58		minimum elong	2257 Dec 28 09:58	6°♂35'00	5°03'02
opposition	2250 Jun 10 19:55	19°♂49'53	10°04'31	max. Earth dist.	2257 Dec 30 00:54	6°♂38'32	32.74845 AU
min. Earth dist.	2250 Jun 10 00:03	19°♂51'13	29.52269 AU	retrograde	2258 Apr 10 17:49	8°♂57'24	
direct	2250 Aug 30 02:10	18°♂27'22		min. Earth dist.	2258 Jun 27 18:46	7°♂41'24	30.85142 AU
conjunction	2250 Dec 13 09:08	20°♂59'54	9°09'17	opposition	2258 Jun 29 09:56	7°♂38'53	5°03'42
minimum elong	2250 Dec 13 09:28	20°♂59'56	9°09'17	direct	2258 Sep 17 22:09	6°♂19'39	
max. Earth dist.	2250 Dec 14 07:03	21°♂02'00	31.56335 AU	conjunction	2258 Dec 30 17:10	8°♂41'26	4°27'20
retrograde	2251 Mar 26 18:58	23°♂30'20		minimum elong	2258 Dec 30 17:20	8°♂41'27	4°27'20
opposition	2251 Jun 13 12:13	22°♂09'32	9°28'10	max. Earth dist.	2259 Jan 01 09:15	8°♂45'03	32.94333 AU
min. Earth dist.	2251 Jun 12 14:15	22°♂11'00	29.65952 AU	retrograde	2259 Apr 13 01:57	11°♂02'40	
direct	2251 Sep 01 19:09	20°♂47'26		min. Earth dist.	2259 Jun 30 02:09	9°♂47'08	31.04723 AU
conjunction	2251 Dec 15 21:32	23°♂18'39	8°35'06	opposition	2259 Jul 01 20:24	9°♂44'27	4°25'37
minimum elong	2251 Dec 15 21:52	23°♂18'41	8°35'06	direct	2259 Sep 20 09:30	8°♂25'35	
max. Earth dist.	2251 Dec 16 21:38	23°♂20'56	31.70864 AU	conjunction	2260 Jan 02 00:00	10°♂46'00	3°51'43
retrograde	2252 Mar 28 07:11	25°♂47'59		minimum elong	2260 Jan 02 00:10	10°♂46'01	3°51'43
min. Earth dist.	2252 Jun 14 01:42	24°♂29'13	29.80628 AU	max. Earth dist.	2260 Jan 03 19:05	10°♂49'51	33.14357 AU
opposition	2252 Jun 15 03:38	24°♂27'30	8°51'15	retrograde	2260 Apr 14 05:54	13°♂06'02	
direct	2252 Sep 03 11:03	23°♂05'47		min. Earth dist.	2260 Jul 01 10:54	11°♂50'51	31.24877 AU
conjunction	2252 Dec 17 09:14	25°♂35'41	8°00'25	opposition	2260 Jul 03 06:10	11°♂48'07	3°47'41
minimum elong	2252 Dec 17 09:32	25°♂35'43	8°00'25	direct	2260 Sep 21 21:00	10°♂29'38	
max. Earth dist.	2252 Dec 18 12:43	25°♂38'17	31.86322 AU	conjunction	2261 Jan 03 05:56	12°♂48'41	3°16'16
retrograde	2253 Mar 30 17:49	28°♂03'55		minimum elong	2261 Jan 03 06:04	12°♂48'41	3°16'15
opposition	2253 Jun 17 18:32	26°♂43'45	8°13'53	max. Earth dist.	2261 Jan 05 02:17	12°♂52'37	33.34953 AU
min. Earth dist.	2253 Jun 16 14:45	26°♂45'35	29.96220 AU	retrograde	2261 Apr 16 10:57	15°♂07'32	
direct	2253 Sep 06 00:48	25°♂22'28		min. Earth dist.	2261 Jul 03 16:35	13°♂52'50	31.45633 AU
conjunction	2253 Dec 19 20:18	27°♂51'02	7°25'21	opposition	2261 Jul 05 14:59	13°♂49'54	3°09'59
				direct	2261 Sep 24 07:06	12°♂31'48	

conjunction	2262 Jan 05 11:11	14°☾49'31	2°41'00	direct	2269 Oct 10 09:09	27°☾50'41	
minimum elong	2262 Jan 05 11:18	14°☾49'31	2°41'00				
max. Earth dist.	2262 Jan 07 10:10	14°☾53'39	33.56132 AU	conjunction	2270 Jan 20 06:30	29°☾58'35	-1°-48'-2
retrograde	2262 Apr 18 15:04	17°☾07'13		minimum elong	2270 Jan 20 06:26	29°☾58'34	1°48'03
min. Earth dist.	2262 Jul 05 23:21	15°☾52'54	31.67025 AU		2270 Jan 20 23:44	0°☾	
opposition	2262 Jul 07 23:12	15°☾49'54	2°32'32	max. Earth dist.	2270 Jan 22 18:06	0°☾03'30	35.43480 AU
direct	2262 Sep 26 14:41	14°☾32'12		retrograde	2270 May 03 08:43	2°☾07'41	
				min. Earth dist.	2270 Jul 21 02:49	0°☾56'48	33.55805 AU
conjunction	2263 Jan 07 15:50	16°☾48'35	2°06'00	opposition	2270 Jul 23 16:03	0°☾53'08	-2°-11'-18
minimum elong	2263 Jan 07 15:54	16°☾48'35	2°06'00		2270 Sep 02 19:55	30°☾☾	
max. Earth dist.	2263 Jan 09 16:52	16°☾52'52	33.77938 AU	direct	2270 Oct 12 13:20	29°☾38'44	
retrograde	2263 Apr 20 18:59	19°☾05'09			2270 Nov 19 20:18	0°☾	
min. Earth dist.	2263 Jul 08 04:04	17°☾51'20	31.89041 AU				
opposition	2263 Jul 10 06:39	17°☾48'11	1°55'25	conjunction	2271 Jan 22 06:21	1°☾45'28	-2°-19'-30
direct	2263 Sep 28 23:26	16°☾30'53		minimum elong	2271 Jan 22 06:16	1°☾45'27	2°19'31
				max. Earth dist.	2271 Jan 24 18:47	1°☾50'25	35.68133 AU
conjunction	2264 Jan 09 19:35	18°☾46'00	1°31'19	retrograde	2271 May 05 09:07	3°☾53'33	
minimum elong	2264 Jan 09 19:39	18°☾46'00	1°31'19	min. Earth dist.	2271 Jul 23 04:17	2°☾42'59	33.80611 AU
max. Earth dist.	2264 Jan 11 22:20	18°☾50'23	34.00328 AU	opposition	2271 Jul 25 18:25	2°☾39'17	-2°-44'-17
retrograde	2264 Apr 22 00:48	21°☾01'28		direct	2271 Oct 14 14:09	1°☾25'14	
min. Earth dist.	2264 Jul 09 08:51	19°☾48'05	32.11661 AU				
opposition	2264 Jul 11 13:28	19°☾44'50	1°18'41	conjunction	2272 Jan 24 05:35	3°☾30'48	-2°-50'-24
direct	2264 Sep 30 04:15	18°☾27'58		minimum elong	2272 Jan 24 05:29	3°☾30'47	2°50'25
				max. Earth dist.	2272 Jan 26 19:39	3°☾35'51	35.92924 AU
conjunction	2265 Jan 10 22:58	20°☾41'49	0°56'59	retrograde	2272 May 06 07:28	5°☾37'52	
minimum elong	2265 Jan 10 23:00	20°☾41'49	0°56'59	min. Earth dist.	2272 Jul 24 05:07	4°☾27'36	34.05556 AU
max. Earth dist.	2265 Jan 13 04:14	20°☾46'24	34.23270 AU	opposition	2272 Jul 26 20:00	4°☾23'53	-3°-16'-38
retrograde	2265 Apr 24 03:20	22°☾56'11		direct	2272 Oct 15 17:28	3°☾10'09	
min. Earth dist.	2265 Jul 11 13:23	21°☾43'14	32.34800 AU				
opposition	2265 Jul 13 19:21	21°☾39'55	0°42'23	conjunction	2273 Jan 25 04:11	5°☾14'35	-3°-20'-43
direct	2265 Oct 02 10:56	20°☾23'29		minimum elong	2273 Jan 25 04:04	5°☾14'35	3°20'45
				max. Earth dist.	2273 Jan 27 18:22	5°☾19'36	36.17859 AU
conjunction	2266 Jan 13 01:34	22°☾36'07	0°23'03	retrograde	2273 May 08 08:08	7°☾20'38	
minimum elong	2266 Jan 13 01:34	22°☾36'07	0°23'04	min. Earth dist.	2273 Jul 26 04:11	6°☾10'43	34.30701 AU
max. Earth dist.	2266 Jan 15 07:36	22°☾40'43	34.46675 AU	opposition	2273 Jul 28 20:50	6°☾06'55	-3°-48'-20
retrograde	2266 Apr 26 07:45	24°☾49'25		direct	2273 Oct 17 17:16	4°☾53'30	
min. Earth dist.	2266 Jul 13 16:18	23°☾36'57	32.58404 AU				
opposition	2266 Jul 16 00:46	23°☾33'30	0°06'34	conjunction	2274 Jan 27 02:19	6°☾56'51	-3°-50'-27
desc. node	2266 Sep 21 21:20	22°☾19'56		minimum elong	2274 Jan 27 02:11	6°☾56'51	3°50'27
direct	2266 Oct 04 16:25	22°☾17'30		max. Earth dist.	2274 Jan 29 18:44	7°☾02'00	36.42993 AU
				retrograde	2274 May 10 05:48	9°☾01'55	
conjunction	2267 Jan 15 03:36	24°☾28'56	0°-10'-30	min. Earth dist.	2274 Jul 28 04:23	7°☾52'16	34.56070 AU
minimum elong	2267 Jan 15 03:35	24°☾28'56	0°10'31	opposition	2274 Jul 30 21:17	7°☾48'28	-4°-19'-22
behind sun begin	2267 Jan 14 22:34	24°☾28'32		direct	2274 Oct 19 18:37	6°☾35'24	
behind sun end	2267 Jan 15 08:36	24°☾29'20					
max. Earth dist.	2267 Jan 17 12:19	24°☾33'44	34.70476 AU	conjunction	2275 Jan 28 23:41	8°☾37'41	-4°-19'-33
retrograde	2267 Apr 28 09:13	26°☾41'11		minimum elong	2275 Jan 28 23:33	8°☾37'40	4°19'35
min. Earth dist.	2267 Jul 15 20:38	25°☾29'05	32.82378 AU	max. Earth dist.	2275 Jan 31 16:26	8°☾42'49	36.68361 AU
opposition	2267 Jul 18 05:39	25°☾25'37	0°-28'-44	retrograde	2275 May 12 02:48	10°☾41'47	
direct	2267 Oct 06 23:41	24°☾10'03		min. Earth dist.	2275 Jul 30 01:49	9°☾32'33	34.81691 AU
				opposition	2275 Aug 01 21:05	9°☾28'38	-4°-49'-42
conjunction	2268 Jan 17 05:05	26°☾20'17	0°-43'-30	direct	2275 Oct 21 19:19	8°☾15'55	
minimum elong	2268 Jan 17 05:03	26°☾20'17	0°43'30				
max. Earth dist.	2268 Jan 19 14:12	26°☾25'05	34.94597 AU	conjunction	2276 Jan 30 20:43	10°☾17'10	-4°-48'-2
retrograde	2268 Apr 29 11:32	28°☾31'29		minimum elong	2276 Jan 30 20:34	10°☾17'09	4°48'02
min. Earth dist.	2268 Jul 16 22:17	27°☾19'52	33.06655 AU	max. Earth dist.	2276 Feb 02 15:19	10°☾22'25	36.93958 AU
opposition	2268 Jul 19 09:40	27°☾16'16	-1°-3'-30	retrograde	2276 May 12 22:11	12°☾20'21	
direct	2268 Oct 08 04:31	26°☾01'06		min. Earth dist.	2276 Jul 31 00:49	11°☾11'26	35.07551 AU
				opposition	2276 Aug 02 20:20	11°☾07'31	-5°-19'-21
conjunction	2269 Jan 18 06:04	28°☾10'10	-1°-16'-2	direct	2276 Oct 22 20:01	9°☾55'09	
minimum elong	2269 Jan 18 06:01	28°☾10'10	1°16'03				
max. Earth dist.	2269 Jan 20 16:59	28°☾15'05	35.18949 AU	conjunction	2277 Jan 31 17:18	11°☾55'24	-5°-15'-52
	2269 Mar 24 21:09	0°☾		minimum elong	2277 Jan 31 17:08	11°☾55'24	5°15'54
retrograde	2269 May 01 09:58	0°☾☾20'20		max. Earth dist.	2277 Feb 03 12:38	12°☾00'41	37.19772 AU
	2269 Jun 09 05:14	30°☾☾☾		retrograde	2277 May 14 17:36	13°☾57'43	
min. Earth dist.	2269 Jul 19 01:42	29°☾09'02	33.31153 AU	min. Earth dist.	2277 Aug 01 21:57	12°☾49'11	35.33593 AU
opposition	2269 Jul 21 13:15	29°☾05'27	-1°-37'-42	opposition	2277 Aug 04 18:57	12°☾45'12	-5°-48'-19

direct	2277 Oct 24 19:43	11° \approx 33'13		min. Earth dist.	2285 Aug 14 15:28	25° \approx 12'39	37.41462 AU
				opposition	2285 Aug 17 15:36	25° \approx 08'39	-9°-15'-5
conjunction	2278 Feb 02 13:14	13° \approx 32'30	-5°-43'-5	direct	2285 Nov 06 16:48	23° \approx 59'18	
minimum elong	2278 Feb 02 13:04	13° \approx 32'29	5°43'05				
max. Earth dist.	2278 Feb 05 09:16	13° \approx 37'47	37.45725 AU	conjunction	2286 Feb 14 15:25	25° \approx 51'34	-8°-57'-53
	2278 Mar 27 00:09	15° \approx		minimum elong	2286 Feb 14 15:13	25° \approx 51'33	8°57'54
retrograde	2278 May 16 14:51	15° \approx 33'58		max. Earth dist.	2286 Feb 17 15:20	25° \approx 56'52	39.51697 AU
	2278 Jul 08 11:06	15° \approx		retrograde	2286 May 28 18:00	27° \approx 46'41	
min. Earth dist.	2278 Aug 03 19:25	14° \approx 25'47	35.59778 AU	min. Earth dist.	2286 Aug 16 10:10	26° \approx 40'42	37.66925 AU
opposition	2278 Aug 06 17:14	14° \approx 21'46	-6°-16'-34	opposition	2286 Aug 19 10:04	26° \approx 36'43	-9°-37'-53
direct	2278 Oct 26 16:35	13° \approx 10'10		direct	2286 Nov 08 10:43	25° \approx 27'39	
	2279 Jan 30 18:31	15° \approx					
conjunction	2279 Feb 04 08:59	15° \approx 08'31	-6°-9'-38	conjunction	2287 Feb 16 07:46	27° \approx 19'06	-9°-19'-24
minimum elong	2279 Feb 04 08:48	15° \approx 08'30	6°09'40	minimum elong	2287 Feb 16 07:33	27° \approx 19'05	9°19'26
max. Earth dist.	2279 Feb 07 06:34	15° \approx 13'53	37.71782 AU	max. Earth dist.	2287 Feb 19 07:06	27° \approx 24'19	39.76936 AU
retrograde	2279 May 18 11:05	17° \approx 09'10		retrograde	2287 May 30 12:40	29° \approx 13'28	
min. Earth dist.	2279 Aug 05 16:53	16° \approx 01'18	35.86022 AU	min. Earth dist.	2287 Aug 18 02:41	28° \approx 07'47	37.92370 AU
opposition	2279 Aug 08 15:00	15° \approx 57'17	-6°-44'-7	opposition	2287 Aug 21 04:03	28° \approx 03'45	-10°00'00
	2279 Sep 26 00:52	15° \approx		direct	2287 Nov 10 02:38	26° \approx 54'57	
direct	2279 Oct 28 14:11	14° \approx 46'04		conjunction	2288 Feb 17 23:48	28° \approx 45'37	-9°-40'-18
	2279 Nov 29 07:54	15° \approx		minimum elong	2288 Feb 17 23:36	28° \approx 45'36	9°40'19
conjunction	2280 Feb 06 04:07	16° \approx 43'30	-6°-35'-34	max. Earth dist.	2288 Feb 21 00:28	28° \approx 50'54	40.02151 AU
minimum elong	2280 Feb 06 03:56	16° \approx 43'30	6°35'34		2288 Apr 04 12:28	0° \approx	
max. Earth dist.	2280 Feb 09 01:18	16° \approx 48'49	37.97854 AU	retrograde	2288 May 31 03:01	0° \approx 39'16	
retrograde	2280 May 19 09:22	18° \approx 43'20			2288 Jul 29 03:23	30° \approx	
min. Earth dist.	2280 Aug 06 12:52	17° \approx 35'50	36.12264 AU	min. Earth dist.	2288 Aug 18 21:01	29° \approx 33'46	38.17789 AU
opposition	2280 Aug 09 12:16	17° \approx 31'47	-7°-10'-58	opposition	2288 Aug 21 21:43	29° \approx 29'47	-10°-21'-26
direct	2280 Oct 29 09:16	16° \approx 20'55		direct	2288 Nov 10 21:47	28° \approx 21'16	
					2289 Feb 12 04:51	0° \approx	
conjunction	2281 Feb 06 23:07	18° \approx 17'29	-7°00'-51	conjunction	2289 Feb 18 15:31	0° \approx 11'10	-10°00'-34
minimum elong	2281 Feb 06 22:56	18° \approx 17'29	7°00'52	minimum elong	2289 Feb 18 15:18	0° \approx 11'10	10°00'35
max. Earth dist.	2281 Feb 09 21:40	18° \approx 22'51	38.23867 AU	max. Earth dist.	2289 Feb 21 16:02	0° \approx 16'25	40.27343 AU
retrograde	2281 May 21 03:48	20° \approx 16'31		retrograde	2289 Jun 01 16:33	2° \approx 04'07	
min. Earth dist.	2281 Aug 08 10:27	19° \approx 09'16	36.38415 AU	min. Earth dist.	2289 Aug 20 12:53	0° \approx 58'56	38.43163 AU
opposition	2281 Aug 11 09:00	19° \approx 05'17	-7°-37'-9	opposition	2289 Aug 23 14:42	0° \approx 54'54	-10°-42'-13
direct	2281 Oct 31 06:27	17° \approx 54'46			2289 Oct 11 02:58	30° \approx	
conjunction	2282 Feb 08 17:40	19° \approx 50'28	-7°-25'-30	direct	2289 Nov 12 16:58	29° \approx 46'40	
minimum elong	2282 Feb 08 17:28	19° \approx 50'27	7°25'30		2289 Dec 14 12:06	0° \approx	
max. Earth dist.	2282 Feb 11 15:36	19° \approx 55'45	38.49762 AU	conjunction	2290 Feb 20 06:48	1° \approx 35'51	-10°-20'-13
retrograde	2282 May 22 21:01	21° \approx 48'42		minimum elong	2290 Feb 20 06:36	1° \approx 35'50	10°20'14
min. Earth dist.	2282 Aug 10 05:32	20° \approx 41'47	36.64422 AU	max. Earth dist.	2290 Feb 23 07:40	1° \approx 41'05	40.52470 AU
opposition	2282 Aug 13 05:21	20° \approx 37'45	-8°-2'-38	retrograde	2290 Jun 03 07:47	3° \approx 28'08	
direct	2282 Nov 02 04:49	19° \approx 27'33		min. Earth dist.	2290 Aug 22 05:56	2° \approx 23'10	38.68471 AU
conjunction	2283 Feb 10 11:41	21° \approx 22'23	-7°-49'-32	opposition	2290 Aug 25 07:40	2° \approx 19'09	-11°-2'-20
minimum elong	2283 Feb 10 11:29	21° \approx 22'23	7°49'33	direct	2290 Nov 14 10:10	1° \approx 11'13	
max. Earth dist.	2283 Feb 13 10:18	21° \approx 27'42	38.75478 AU	conjunction	2291 Feb 21 21:48	2° \approx 59'41	-10°-39'-16
retrograde	2283 May 24 13:48	23° \approx 19'50		minimum elong	2291 Feb 21 21:35	2° \approx 59'40	10°39'17
min. Earth dist.	2283 Aug 12 02:08	22° \approx 13'09	36.90258 AU	max. Earth dist.	2291 Feb 24 23:29	3° \approx 04'57	40.77508 AU
opposition	2283 Aug 15 01:24	22° \approx 09'10	-8°-27'-27	retrograde	2291 Jun 04 21:56	4° \approx 51'19	
direct	2283 Nov 04 02:10	20° \approx 59'16		min. Earth dist.	2291 Aug 23 22:29	3° \approx 46'36	38.93642 AU
conjunction	2284 Feb 12 05:29	22° \approx 53'14	-8°-12'-56	opposition	2291 Aug 27 00:09	3° \approx 42'36	-11°-21'-49
minimum elong	2284 Feb 12 05:17	22° \approx 53'13	8°12'56	direct	2291 Nov 16 03:42	2° \approx 34'57	
max. Earth dist.	2284 Feb 15 04:18	22° \approx 58'32	39.01026 AU	conjunction	2292 Feb 23 12:30	4° \approx 22'43	-10°-57'-43
retrograde	2284 May 25 05:58	24° \approx 49'54		minimum elong	2292 Feb 23 12:18	4° \approx 22'42	10°57'44
min. Earth dist.	2284 Aug 12 20:57	23° \approx 43'28	37.15917 AU	max. Earth dist.	2292 Feb 26 13:17	4° \approx 27'53	41.02380 AU
opposition	2284 Aug 15 20:38	23° \approx 39'28	-8°-51'-36	retrograde	2292 Jun 05 15:24	6° \approx 13'43	
direct	2284 Nov 04 23:05	22° \approx 29'51		min. Earth dist.	2292 Aug 24 14:05	5° \approx 09'16	39.18632 AU
conjunction	2285 Feb 12 22:38	24° \approx 22'57	-8°-35'-43	opposition	2292 Aug 27 16:10	5° \approx 05'16	-11°-40'-41
minimum elong	2285 Feb 12 22:26	24° \approx 22'56	8°35'45	direct	2292 Nov 16 17:27	3° \approx 57'54	
max. Earth dist.	2285 Feb 15 21:07	24° \approx 28'11	39.26410 AU	conjunction	2293 Feb 24 03:06	5° \approx 45'00	-11°-15'-36
retrograde	2285 May 27 00:33	26° \approx 18'51		minimum elong	2293 Feb 24 02:53	5° \approx 44'59	11°15'36

max. Earth dist.	2293 Feb 27 04:47	5° ✕ 50'12	41.27028 AU	opposition	2301 Sep 10 01:50	16° ✕ 53'51	-14°-4'-17
retrograde	2293 Jun 07 07:01	7° ✕ 35'23		direct	2301 Nov 30 04:54	15° ✕ 48'35	
min. Earth dist.	2293 Aug 26 07:09	6° ✕ 31'05	39.43354 AU				
opposition	2293 Aug 29 08:00	6° ✕ 27'11	-11°-58'-56	conjunction	2302 Mar 09 00:00	17° ✕ 30'07	-13°-31'-58
direct	2293 Nov 18 08:30	5° ✕ 20'05		minimum elong	2302 Mar 08 23:50	17° ✕ 30'06	13°31'59
				max. Earth dist.	2302 Mar 11 23:27	17° ✕ 34'56	43.36203 AU
conjunction	2294 Feb 25 17:13	7° ✕ 06'31	-11°-32'-54	retrograde	2302 Jun 20 00:25	19° ✕ 15'20	
minimum elong	2294 Feb 25 17:02	7° ✕ 06'30	11°32'56	min. Earth dist.	2302 Sep 08 15:14	18° ✕ 12'43	41.53266 AU
max. Earth dist.	2294 Feb 28 17:49	7° ✕ 11'36	41.51388 AU	opposition	2302 Sep 11 14:46	18° ✕ 08'59	-14°-17'-25
retrograde	2294 Jun 08 21:27	8° ✕ 56'16		direct	2302 Dec 01 18:51	17° ✕ 03'58	
min. Earth dist.	2294 Aug 27 21:53	7° ✕ 52'14	39.67760 AU				
opposition	2294 Aug 30 23:28	7° ✕ 48'18	-12°-16'-36	conjunction	2303 Mar 10 11:45	18° ✕ 44'59	-13°-44'-27
direct	2294 Nov 19 23:28	6° ✕ 41'28		minimum elong	2303 Mar 10 11:36	18° ✕ 44'58	13°44'28
				max. Earth dist.	2303 Mar 13 11:55	18° ✕ 49'49	43.58471 AU
conjunction	2295 Feb 27 07:13	8° ✕ 27'15	-11°-49'-40	retrograde	2303 Jun 21 12:02	20° ✕ 29'42	
minimum elong	2295 Feb 27 07:00	8° ✕ 27'14	11°49'41	min. Earth dist.	2303 Sep 10 04:19	19° ✕ 27'16	41.75597 AU
max. Earth dist.	2295 Mar 02 07:46	8° ✕ 32'18	41.75406 AU	opposition	2303 Sep 13 03:14	19° ✕ 23'36	-14°-30'-1
retrograde	2295 Jun 10 09:45	10° ✕ 16'24		direct	2303 Dec 03 08:07	18° ✕ 18'49	
min. Earth dist.	2295 Aug 29 14:23	9° ✕ 12'30	39.91823 AU				
opposition	2295 Sep 01 14:42	9° ✕ 08'38	-12°-33'-41	conjunction	2304 Mar 10 23:07	19° ✕ 59'19	-13°-56'-27
direct	2295 Nov 21 16:28	8° ✕ 02'02		minimum elong	2304 Mar 10 22:57	19° ✕ 59'18	13°56'28
				max. Earth dist.	2304 Mar 13 22:00	20° ✕ 04'02	43.80506 AU
conjunction	2296 Feb 28 20:56	9° ✕ 47'10	-12°-5'-54	retrograde	2304 Jun 22 02:07	21° ✕ 43'34	
minimum elong	2296 Feb 28 20:45	9° ✕ 47'09	12°05'55	min. Earth dist.	2304 Sep 10 16:15	20° ✕ 41'21	41.97670 AU
max. Earth dist.	2296 Mar 02 21:17	9° ✕ 52'11	41.99088 AU	opposition	2304 Sep 13 15:30	20° ✕ 37'41	-14°-42'-6
retrograde	2296 Jun 10 21:11	11° ✕ 35'42		direct	2304 Dec 03 18:16	19° ✕ 33'08	
min. Earth dist.	2296 Aug 30 05:09	10° ✕ 31'59	40.15532 AU				
opposition	2296 Sep 02 05:24	10° ✕ 28'09	-12°-50'-13	conjunction	2305 Mar 12 10:26	21° ✕ 13'09	-14°-7'-57
direct	2296 Nov 22 09:33	9° ✕ 21'46		minimum elong	2305 Mar 12 10:18	21° ✕ 13'08	14°07'58
				max. Earth dist.	2305 Mar 15 09:48	21° ✕ 17'52	44.02241 AU
conjunction	2297 Mar 01 10:10	11° ✕ 06'14	-12°-21'-35	retrograde	2305 Jun 23 14:10	22° ✕ 56'55	
minimum elong	2297 Mar 01 09:58	11° ✕ 06'14	12°21'36	min. Earth dist.	2305 Sep 12 05:55	21° ✕ 54'50	42.19405 AU
max. Earth dist.	2297 Mar 04 09:35	11° ✕ 11'10	42.22435 AU	opposition	2305 Sep 15 03:31	21° ✕ 51'15	-14°-53'-41
retrograde	2297 Jun 12 11:29	12° ✕ 54'11		direct	2305 Dec 05 05:11	20° ✕ 46'56	
min. Earth dist.	2297 Aug 31 19:35	11° ✕ 50'38	40.38953 AU				
opposition	2297 Sep 03 19:45	11° ✕ 46'49	-13°-6'-10	conjunction	2306 Mar 13 21:36	22° ✕ 26'27	-14°-19'00
direct	2297 Nov 23 23:13	10° ✕ 40'39		minimum elong	2306 Mar 13 21:26	22° ✕ 26'27	14°19'01
				max. Earth dist.	2306 Mar 16 19:43	22° ✕ 31'05	44.23627 AU
conjunction	2298 Mar 02 23:13	12° ✕ 24'29	-12°-36'-44	retrograde	2306 Jun 25 01:16	24° ✕ 09'45	
minimum elong	2298 Mar 02 23:01	12° ✕ 24'29	12°36'46	min. Earth dist.	2306 Sep 13 17:30	23° ✕ 07'52	42.40753 AU
max. Earth dist.	2298 Mar 05 23:31	12° ✕ 29'27	42.45529 AU	opposition	2306 Sep 16 15:19	23° ✕ 04'17	-15°-4'-47
retrograde	2298 Jun 14 00:29	14° ✕ 11'51		direct	2306 Dec 06 16:17	22° ✕ 00'10	
min. Earth dist.	2298 Sep 02 10:27	13° ✕ 08'26	40.62137 AU				
opposition	2298 Sep 05 09:50	13° ✕ 04'40	-13°-21'-33	conjunction	2307 Mar 15 08:26	23° ✕ 39'13	-14°-29'-36
direct	2298 Nov 25 13:39	11° ✕ 58'43		minimum elong	2307 Mar 15 08:19	23° ✕ 39'12	14°29'37
				max. Earth dist.	2307 Mar 18 05:53	23° ✕ 43'46	44.44594 AU
conjunction	2299 Mar 04 11:44	13° ✕ 41'57	-12°-51'-21	retrograde	2307 Jun 26 11:19	25° ✕ 22'02	
minimum elong	2299 Mar 04 11:33	13° ✕ 41'56	12°51'22	min. Earth dist.	2307 Sep 15 06:39	24° ✕ 20'15	42.61672 AU
max. Earth dist.	2299 Mar 07 11:00	13° ✕ 46'49	42.68426 AU	opposition	2307 Sep 18 03:02	24° ✕ 16'45	-15°-15'-27
retrograde	2299 Jun 15 15:11	15° ✕ 28'43		direct	2307 Dec 08 04:45	23° ✕ 12'50	
min. Earth dist.	2299 Sep 03 23:14	14° ✕ 25'33	40.85151 AU				
opposition	2299 Sep 06 23:32	14° ✕ 21'45	-13°-36'-22	conjunction	2308 Mar 15 19:19	24° ✕ 51'22	-14°-39'-46
direct	2299 Nov 27 01:02	13° ✕ 16'01		minimum elong	2308 Mar 15 19:11	24° ✕ 51'21	14°39'46
				max. Earth dist.	2308 Mar 18 16:33	24° ✕ 55'54	44.65134 AU
conjunction	2300 Mar 06 00:10	14° ✕ 58'40	-13°-5'-25	retrograde	2308 Jun 26 19:00	26° ✕ 33'43	
minimum elong	2300 Mar 05 23:59	14° ✕ 58'39	13°05'27	min. Earth dist.	2308 Sep 15 18:29	25° ✕ 32'03	42.82142 AU
max. Earth dist.	2300 Mar 09 00:16	15° ✕ 03'33	42.91161 AU	opposition	2308 Sep 18 14:10	25° ✕ 28'35	-15°-25'-39
retrograde	2300 Jun 17 03:46	16° ✕ 44'53		direct	2308 Dec 08 19:11	24° ✕ 24'50	
min. Earth dist.	2300 Sep 05 13:41	15° ✕ 41'51	41.08013 AU				
opposition	2300 Sep 08 12:51	15° ✕ 38'07	-13°-50'-36	conjunction	2309 Mar 17 05:44	26° ✕ 02'52	-14°-49'-30
direct	2300 Nov 28 13:38	14° ✕ 32'37		minimum elong	2309 Mar 17 05:37	26° ✕ 02'52	14°49'31
				max. Earth dist.	2309 Mar 20 01:17	26° ✕ 07'16	44.85252 AU
conjunction	2301 Mar 07 12:21	16° ✕ 14'42	-13°-18'-57	retrograde	2309 Jun 28 07:02	27° ✕ 44'44	
minimum elong	2301 Mar 07 12:11	16° ✕ 14'41	13°18'58	min. Earth dist.	2309 Sep 17 05:47	26° ✕ 43'11	43.02226 AU
max. Earth dist.	2301 Mar 10 12:10	16° ✕ 19'33	43.13764 AU	opposition	2309 Sep 20 01:15	26° ✕ 39'45	-15°-35'-24
retrograde	2301 Jun 18 13:06	18° ✕ 00'24		direct	2309 Dec 10 05:42	25° ✕ 36'09	
min. Earth dist.	2301 Sep 07 01:53	16° ✕ 57'36	41.30720 AU				

conjunction	2310 Mar 18 15:51	27° ✕ 13'42	-14°-58'-48	direct	2317 Dec 19 10:13	4° Υ 47'16	
minimum elong	2310 Mar 18 15:44	27° ✕ 13'42	14°58'49				
max. Earth dist.	2310 Mar 21 12:00	27° ✕ 18'07	45.05009 AU	conjunction	2318 Mar 27 18:40	6° Υ 21'34	-15°-57'-43
retrograde	2310 Jun 29 18:03	28° ✕ 55'06		minimum elong	2318 Mar 27 18:37	6° Υ 21'33	15°57'44
min. Earth dist.	2310 Sep 18 18:04	27° ✕ 53'37	43.21970 AU	max. Earth dist.	2318 Mar 30 10:38	6° Υ 25'34	46.53471 AU
opposition	2310 Sep 21 12:07	27° ✕ 50'16	-15°-44'-41	retrograde	2318 Jul 08 19:18	7° Υ 59'49	
direct	2310 Dec 11 16:25	26° ✕ 46'49		min. Earth dist.	2318 Sep 28 04:21	6° Υ 59'28	44.70156 AU
				opposition	2318 Sep 30 18:20	6° Υ 56'24	-16°-43'-2
conjunction	2311 Mar 20 01:50	28° ✕ 23'53	-15°-7'-40	direct	2318 Dec 20 22:00	5° Υ 54'25	
minimum elong	2311 Mar 20 01:44	28° ✕ 23'53	15°07'41				
max. Earth dist.	2311 Mar 22 20:55	28° ✕ 28'12	45.24474 AU	conjunction	2319 Mar 29 03:24	7° Υ 28'22	-16°-3'-19
	2311 Jun 10 14:39	0° Υ		minimum elong	2319 Mar 29 03:20	7° Υ 28'22	16°03'20
retrograde	2311 Jul 01 04:11	0° Υ 04'49		max. Earth dist.	2319 Mar 31 17:30	7° Υ 32'15	46.70451 AU
	2311 Jul 21 19:37	30° ✕		retrograde	2319 Jul 10 03:46	9° Υ 06'17	
min. Earth dist.	2311 Sep 20 03:52	29° ✕ 03'30	43.41444 AU	min. Earth dist.	2319 Sep 29 14:34	8° Υ 06'02	44.86989 AU
opposition	2311 Sep 22 22:32	29° ✕ 00'08	-15°-53'-31	opposition	2319 Oct 02 03:19	8° Υ 03'01	-16°-48'-31
direct	2311 Dec 13 01:35	27° ✕ 56'51		direct	2319 Dec 22 08:11	7° Υ 01'12	
conjunction	2312 Mar 20 11:35	29° ✕ 33'28	-15°-16'-5	conjunction	2320 Mar 29 12:11	8° Υ 34'48	-16°-8'-34
minimum elong	2312 Mar 20 11:29	29° ✕ 33'27	15°16'05	minimum elong	2320 Mar 29 12:09	8° Υ 34'48	16°08'35
max. Earth dist.	2312 Mar 23 06:27	29° ✕ 37'45	45.43681 AU	max. Earth dist.	2320 Apr 01 02:14	8° Υ 38'40	46.86934 AU
	2312 Apr 06 22:08	0° Υ		retrograde	2320 Jul 10 12:14	10° Υ 12'22	
retrograde	2312 Jul 01 12:57	1° Υ 13'57		min. Earth dist.	2320 Sep 30 00:58	9° Υ 12'09	45.03300 AU
min. Earth dist.	2312 Sep 20 15:26	0° Υ 12'43	43.60674 AU	opposition	2320 Oct 02 12:07	9° Υ 09'14	-16°-53'-39
opposition	2312 Sep 23 08:54	0° Υ 09'25	-16°-1'-54	direct	2320 Dec 22 18:22	8° Υ 07'33	
	2312 Oct 01 04:02	30° ✕					
direct	2312 Dec 13 12:24	29° ✕ 06'18		conjunction	2321 Mar 30 20:31	9° Υ 40'47	-16°-13'-28
	2313 Feb 21 05:08	0° Υ		minimum elong	2321 Mar 30 20:28	9° Υ 40'47	16°13'29
				max. Earth dist.	2321 Apr 02 08:38	9° Υ 44'30	47.02926 AU
conjunction	2313 Mar 21 21:12	0° Υ 42'29	-15°-24'-4	retrograde	2321 Jul 11 22:37	11° Υ 17'59	
minimum elong	2313 Mar 21 21:07	0° Υ 42'29	15°24'05	min. Earth dist.	2321 Oct 01 09:31	10° Υ 17'54	45.19147 AU
max. Earth dist.	2313 Mar 24 16:08	0° Υ 46'46	45.62666 AU	opposition	2321 Oct 03 20:37	10° Υ 14'59	-16°-58'-26
retrograde	2313 Jul 02 19:49	2° Υ 22'34		direct	2321 Dec 24 01:07	9° Υ 13'26	
min. Earth dist.	2313 Sep 22 01:26	1° Υ 21'30	43.79662 AU				
opposition	2313 Sep 24 18:51	1° Υ 18'12	-16°-9'-49	conjunction	2322 Apr 01 04:45	10° Υ 46'18	-16°-18'-2
direct	2313 Dec 15 00:33	0° Υ 15'16		minimum elong	2322 Apr 01 04:43	10° Υ 46'18	16°18'03
				max. Earth dist.	2322 Apr 03 16:35	10° Υ 49'59	47.18479 AU
conjunction	2314 Mar 23 06:30	1° Υ 51'02	-15°-31'-36	retrograde	2322 Jul 13 07:17	12° Υ 23'08	
minimum elong	2314 Mar 23 06:25	1° Υ 51'02	15°31'37	min. Earth dist.	2322 Oct 02 19:47	11° Υ 23'04	45.34588 AU
max. Earth dist.	2314 Mar 26 00:15	1° Υ 55'13	45.81419 AU	opposition	2322 Oct 05 05:05	11° Υ 20'15	-17°-2'-52
retrograde	2314 Jul 04 06:21	3° Υ 30'43		direct	2322 Dec 25 08:19	10° Υ 18'48	
min. Earth dist.	2314 Sep 23 11:33	2° Υ 29'49	43.98424 AU				
opposition	2314 Sep 26 04:48	2° Υ 26'32	-16°-17'-17	conjunction	2323 Apr 02 12:48	11° Υ 51'20	-16°-22'-14
direct	2314 Dec 16 09:56	1° Υ 23'48		minimum elong	2323 Apr 02 12:45	11° Υ 51'20	16°22'15
				max. Earth dist.	2323 Apr 04 23:59	11° Υ 54'58	47.33674 AU
conjunction	2315 Mar 24 15:44	2° Υ 59'10	-15°-38'-44	retrograde	2323 Jul 14 13:07	13° Υ 27'48	
minimum elong	2315 Mar 24 15:39	2° Υ 59'10	15°38'45	min. Earth dist.	2323 Oct 04 03:50	12° Υ 27'51	45.49679 AU
max. Earth dist.	2315 Mar 27 10:08	3° Υ 03'23	45.99928 AU	opposition	2323 Oct 06 13:11	12° Υ 25'02	-17°-6'-55
retrograde	2315 Jul 05 16:19	4° Υ 38'29		direct	2323 Dec 26 16:40	11° Υ 23'42	
min. Earth dist.	2315 Sep 24 22:32	3° Υ 37'42	44.16902 AU				
opposition	2315 Sep 27 14:31	3° Υ 34'30	-16°-24'-20	conjunction	2324 Apr 02 20:39	12° Υ 55'53	-16°-26'-5
direct	2315 Dec 17 19:49	2° Υ 31'57		minimum elong	2324 Apr 02 20:38	12° Υ 55'53	16°26'06
				max. Earth dist.	2324 Apr 05 06:37	12° Υ 59'27	47.48539 AU
conjunction	2316 Mar 25 00:51	4° Υ 06'57	-15°-45'-27	retrograde	2324 Jul 14 20:09	14° Υ 32'02	
minimum elong	2316 Mar 25 00:47	4° Υ 06'57	15°45'27	min. Earth dist.	2324 Oct 04 12:46	13° Υ 32'08	45.64473 AU
max. Earth dist.	2316 Mar 27 17:44	4° Υ 11'03	46.18149 AU	opposition	2324 Oct 06 21:06	13° Υ 29'22	-17°-10'-36
retrograde	2316 Jul 06 04:01	5° Υ 45'54		direct	2324 Dec 27 01:44	12° Υ 28'10	
min. Earth dist.	2316 Sep 25 07:38	4° Υ 45'18	44.35062 AU				
opposition	2316 Sep 27 23:48	4° Υ 42'07	-16°-30'-57	conjunction	2325 Apr 04 04:28	14° Υ 00'01	-16°-29'-34
direct	2316 Dec 18 02:13	3° Υ 39'46		minimum elong	2325 Apr 04 04:27	14° Υ 00'01	16°29'35
				max. Earth dist.	2325 Apr 06 14:48	14° Υ 03'35	47.63129 AU
conjunction	2317 Mar 26 09:50	5° Υ 14'25	-15°-51'-46	retrograde	2325 Jul 16 01:34	15° Υ 35'51	
minimum elong	2317 Mar 26 09:45	5° Υ 14'25	15°51'47	min. Earth dist.	2325 Oct 05 21:21	14° Υ 36'01	45.78979 AU
max. Earth dist.	2317 Mar 29 02:26	5° Υ 18'28	46.36012 AU	opposition	2325 Oct 08 04:55	14° Υ 33'18	-17°-13'-54
retrograde	2317 Jul 07 13:31	6° Υ 53'01		direct	2325 Dec 28 12:37	13° Υ 32'13	
min. Earth dist.	2317 Sep 26 18:57	5° Υ 52'30	44.52837 AU				
opposition	2317 Sep 29 09:12	5° Υ 49'25	-16°-37'-11	conjunction	2326 Apr 05 11:52	15° Υ 03'45	-16°-32'-42

minimum elong	2326 Apr 05 11:52	15°03'45	16°32'43	min. Earth dist.	2334 Oct 15 22:21	23°05'56"52	46.92790 AU
max. Earth dist.	2326 Apr 07 20:39	15°07'13	47.77452 AU	opposition	2334 Oct 17 21:08	23°05'54"37	-17°-28'-38
retrograde	2326 Jul 17 11:48	16°03'39"16		direct	2335 Jan 07 02:08	22°05'54"35	
min. Earth dist.	2326 Oct 07 04:56	15°03'39"35	45.93218 AU				
opposition	2326 Oct 09 12:37	15°03'36"52	-17°-16'-50	conjunction	2335 Apr 15 03:49	24°02'23"42	-16°-46'-30
direct	2326 Dec 29 18:45	14°03'35"55		minimum elong	2335 Apr 15 03:53	24°02'23"43	16°46'31
				max. Earth dist.	2335 Apr 17 04:59	24°02'26"38	48.89143 AU
conjunction	2327 Apr 06 19:22	16°07'07"09	-16°-35'-29	retrograde	2335 Jul 26 23:17	25°05'56"46	
minimum elong	2327 Apr 06 19:22	16°07'07"09	16°35'29	min. Earth dist.	2335 Oct 17 05:21	24°05'57"36	47.03246 AU
max. Earth dist.	2327 Apr 09 04:13	16°07'10"36	47.91493 AU	opposition	2335 Oct 19 03:23	24°05'55"23	-17°-28'-45
retrograde	2327 Jul 18 21:29	17°04'42"22		direct	2336 Jan 08 11:54	23°05'55"25	
min. Earth dist.	2327 Oct 08 14:12	16°04'42"44	46.07159 AU				
opposition	2327 Oct 10 20:08	16°04'40"06	-17°-19'-25	conjunction	2336 Apr 15 10:17	25°02'24"19	-16°-46'-33
direct	2327 Dec 31 00:30	15°03'39"17		minimum elong	2336 Apr 15 10:19	25°02'24"19	16°46'34
				max. Earth dist.	2336 Apr 17 09:33	25°02'27"07	48.99441 AU
conjunction	2328 Apr 07 02:48	17°07'10"15	-16°-37'-55	retrograde	2336 Jul 27 07:12	26°05'57"07	
minimum elong	2328 Apr 07 02:49	17°07'10"15	16°37'57	min. Earth dist.	2336 Oct 17 11:51	25°05'58"02	47.13396 AU
max. Earth dist.	2328 Apr 09 10:52	17°07'13"38	48.05237 AU	opposition	2336 Oct 19 09:38	25°05'55"50	-17°-28'-33
retrograde	2328 Jul 19 03:21	18°04'45"10		direct	2337 Jan 08 18:05	24°05'55"58	
min. Earth dist.	2328 Oct 08 21:28	17°04'45"40	46.20760 AU				
opposition	2328 Oct 11 03:27	17°04'43"03	-17°-21'-40	conjunction	2337 Apr 16 16:37	26°02'24"39	-16°-46'-18
direct	2328 Dec 31 07:41	16°04'42"22		minimum elong	2337 Apr 16 16:41	26°02'24"39	16°46'19
				max. Earth dist.	2337 Apr 18 16:03	26°02'27"26	49.09439 AU
conjunction	2329 Apr 08 09:57	18°07'13"03	-16°-40'-2	retrograde	2337 Jul 28 15:48	27°05'57"14	
minimum elong	2329 Apr 08 09:58	18°07'13"03	16°40'02	min. Earth dist.	2337 Oct 18 19:41	26°05'58"10	47.23250 AU
max. Earth dist.	2329 Apr 10 16:33	18°07'16"21	48.18610 AU	opposition	2337 Oct 20 15:51	26°05'56"03	-17°-28'-2
retrograde	2329 Jul 20 09:22	19°04'47"43		direct	2338 Jan 09 23:14	25°05'56"17	
min. Earth dist.	2329 Oct 10 06:13	18°04'48"16	46.33975 AU				
opposition	2329 Oct 12 10:46	18°04'45"43	-17°-23'-34	conjunction	2338 Apr 17 22:55	27°02'24"45	-16°-45'-44
direct	2330 Jan 01 15:32	17°04'45"11		minimum elong	2338 Apr 17 22:59	27°02'24"45	16°45'44
				max. Earth dist.	2338 Apr 19 21:26	27°02'27"29	49.19177 AU
conjunction	2330 Apr 09 17:17	19°05'15"36	-16°-41'-50	retrograde	2338 Jul 29 21:58	28°05'57"07	
minimum elong	2330 Apr 09 17:18	19°05'15"36	16°41'51	min. Earth dist.	2338 Oct 20 01:17	27°05'58"10	47.32834 AU
max. Earth dist.	2330 Apr 11 23:52	19°05'18"54	48.31572 AU	opposition	2338 Oct 21 21:49	27°05'56"03	-17°-27'-12
retrograde	2330 Jul 21 14:34	20°05'50"00		direct	2339 Jan 11 03:24	26°05'56"23	
min. Earth dist.	2330 Oct 11 14:39	19°05'50"37	46.46730 AU				
opposition	2330 Oct 13 17:54	19°05'48"08	-17°-25'-10	conjunction	2339 Apr 19 05:03	28°02'24"39	-16°-44'-52
direct	2331 Jan 03 01:14	18°04'47"43		minimum elong	2339 Apr 19 05:08	28°02'24"40	16°44'53
				max. Earth dist.	2339 Apr 21 02:23	28°02'27"19	49.28631 AU
conjunction	2331 Apr 11 00:23	20°05'17"53	-16°-43'-20	retrograde	2339 Jul 31 03:15	29°05'56"49	
minimum elong	2331 Apr 11 00:26	20°05'17"53	16°43'20	min. Earth dist.	2339 Oct 21 08:52	28°05'57"55	47.42127 AU
max. Earth dist.	2331 Apr 13 04:48	20°05'21"02	48.44058 AU	opposition	2339 Oct 23 03:52	28°05'55"52	-17°-26'-3
retrograde	2331 Jul 22 23:14	21°05'52"01		direct	2340 Jan 12 09:17	27°05'56"19	
min. Earth dist.	2331 Oct 12 22:13	20°05'52"43	46.58987 AU				
opposition	2331 Oct 15 00:57	20°05'50"16	-17°-26'-28	conjunction	2340 Apr 19 11:20	29°02'24"26	-16°-43'-42
direct	2332 Jan 04 07:38	19°04'49"58		minimum elong	2340 Apr 19 11:25	29°02'24"26	16°43'42
				max. Earth dist.	2340 Apr 21 08:45	29°02'27"05	49.37785 AU
conjunction	2332 Apr 11 07:33	21°05'19"52	-16°-44'-33		2340 May 15 10:42	0°08	
minimum elong	2332 Apr 11 07:34	21°05'19"52	16°44'34	retrograde	2340 Jul 31 06:06	0°08'56"24	
max. Earth dist.	2332 Apr 13 11:19	21°05'22"57	48.56024 AU		2340 Oct 19 12:37	30°08'00	
retrograde	2332 Jul 23 07:17	22°05'53"43		min. Earth dist.	2340 Oct 21 15:20	29°05'57"35	47.51078 AU
min. Earth dist.	2332 Oct 13 07:15	21°05'54"25	46.70716 AU	opposition	2340 Oct 23 09:35	29°05'55"34	-17°-24'-37
opposition	2332 Oct 15 07:47	21°05'52"05	-17°-27'-29	direct	2341 Jan 12 17:56	28°05'56"08	
direct	2333 Jan 04 13:54	20°05'51"52			2341 Apr 03 08:24	0°08	
conjunction	2333 Apr 12 14:30	22°02'21"30	-16°-45'-29	conjunction	2341 Apr 20 17:22	0°08'24"04	-16°-42'-15
minimum elong	2333 Apr 12 14:34	22°02'21"30	16°45'30	minimum elong	2341 Apr 20 17:27	0°08'24"04	16°42'17
max. Earth dist.	2333 Apr 14 17:00	22°02'24"31	48.67498 AU	max. Earth dist.	2341 Apr 22 12:49	0°08'26"37	49.46584 AU
retrograde	2333 Jul 24 14:05	23°05'55"04		retrograde	2341 Aug 01 13:10	1°08'55"52	
min. Earth dist.	2333 Oct 14 14:04	22°05'55"51	46.81962 AU	min. Earth dist.	2341 Oct 22 21:48	0°08'57"09	47.59654 AU
opposition	2333 Oct 16 14:27	22°05'53"32	-17°-28'-12	opposition	2341 Oct 24 15:23	0°08'55"10	-17°-22'-53
direct	2334 Jan 05 19:15	21°05'53"24			2341 Dec 25 12:43	30°08'00	
				direct	2342 Jan 13 23:32	29°05'55"50	
conjunction	2334 Apr 13 21:04	23°02'22"47	-16°-46'-8		2342 Feb 02 04:55	0°08	
minimum elong	2334 Apr 13 21:05	23°02'22"47	16°46'09				
max. Earth dist.	2334 Apr 15 22:09	23°02'25"42	48.78512 AU	conjunction	2342 Apr 21 23:24	1°08'23"36	-16°-40'-33
retrograde	2334 Jul 25 20:05	24°05'56"05		minimum elong	2342 Apr 21 23:30	1°08'23"37	16°40'33

max. Earth dist.	2342 Apr 23 18:31	1°8'26"07	49.54963 AU	opposition	2350 Nov 02 15:30	9°8'41"59	-16°-55'-52
retrograde	2342 Aug 02 20:41	2°8'55"15		direct	2351 Jan 23 01:13	8°8'43"08	
min. Earth dist.	2342 Oct 24 05:38	1°8'56"31	47.67767 AU				
opposition	2342 Oct 25 21:12	1°8'54"38	-17°-20'-54	conjunction	2351 May 01 03:08	10°8'09"28	-16°-13'-53
direct	2343 Jan 15 05:39	0°8'55"24		minimum elong	2351 May 01 03:16	10°8'09"29	16°13'54
				max. Earth dist.	2351 May 02 11:41	10°8'11"21	50.09713 AU
conjunction	2343 Apr 23 05:35	2°8'23"01	-16°-38'-35	retrograde	2351 Aug 11 20:18	11°8'39"30	
minimum elong	2343 Apr 23 05:40	2°8'23"01	16°38'36	opposition	2351 Nov 03 20:20	10°8'39"28	-16°-51'-31
max. Earth dist.	2343 Apr 24 23:08	2°8'25"26	49.62865 AU	min. Earth dist.	2351 Nov 02 13:24	10°8'40"55	48.20212 AU
retrograde	2343 Aug 04 04:59	3°8'54"27		direct	2352 Jan 24 06:14	9°8'40"41	
min. Earth dist.	2343 Oct 25 11:34	2°8'55"48	47.75367 AU				
opposition	2343 Oct 27 02:41	2°8'53"57	-17°-18'-40	conjunction	2352 May 01 08:40	11°8'06"56	-16°-9'-38
direct	2344 Jan 16 08:31	1°8'54"47		minimum elong	2352 May 01 08:48	11°8'06"56	16°09'39
				max. Earth dist.	2352 May 02 17:02	11°8'08"47	50.14021 AU
conjunction	2344 Apr 23 11:38	3°8'22"14	-16°-36'-22	retrograde	2352 Aug 12 02:02	12°8'36"51	
minimum elong	2344 Apr 23 11:45	3°8'22"14	16°36'23	min. Earth dist.	2352 Nov 02 20:03	11°8'38"17	48.24267 AU
max. Earth dist.	2344 Apr 25 03:23	3°8'24"32	49.70229 AU	opposition	2352 Nov 04 01:15	11°8'36"55	-16°-46'-55
retrograde	2344 Aug 04 11:35	4°8'53"28		direct	2353 Jan 24 12:14	10°8'38"13	
min. Earth dist.	2344 Oct 25 19:20	3°8'54"48	47.82429 AU				
opposition	2344 Oct 27 08:22	3°8'53"03	-17°-16'-11	conjunction	2353 May 02 13:59	12°8'04"22	-16°-5'-6
direct	2345 Jan 16 12:21	2°8'53"56		minimum elong	2353 May 02 14:07	12°8'04"22	16°05'07
				max. Earth dist.	2353 May 03 21:07	12°8'06"09	50.17972 AU
conjunction	2345 Apr 24 17:34	4°8'21"12	-16°-33'-56	retrograde	2353 Aug 13 09:32	13°8'34"11	
minimum elong	2345 Apr 24 17:39	4°8'21"12	16°33'57	min. Earth dist.	2353 Nov 04 01:00	12°8'35"42	48.27929 AU
max. Earth dist.	2345 Apr 26 08:50	4°8'23"29	49.77072 AU	opposition	2353 Nov 05 06:02	12°8'34"20	-16°-42'-4
retrograde	2345 Aug 05 13:17	5°8'52"15		direct	2354 Jan 25 14:39	11°8'35"42	
min. Earth dist.	2345 Oct 27 01:38	4°8'53"35	47.88967 AU				
opposition	2345 Oct 28 13:48	4°8'51"52	-17°-13'-28	conjunction	2354 May 03 19:24	13°8'01"48	-16°00'-21
direct	2346 Jan 17 21:20	3°8'52"49		minimum elong	2354 May 03 19:32	13°8'01"48	16°00'23
				max. Earth dist.	2354 May 05 00:54	13°8'03"29	50.21487 AU
conjunction	2346 Apr 25 23:20	5°8'19"53	-16°-31'-14	retrograde	2354 Aug 14 16:40	14°8'31"32	
minimum elong	2346 Apr 25 23:27	5°8'19"54	16°31'16	min. Earth dist.	2354 Nov 05 08:04	13°8'33"01	48.31132 AU
max. Earth dist.	2346 Apr 27 12:25	5°8'22"02	49.83430 AU	opposition	2354 Nov 06 10:53	13°8'31"46	-16°-36'-58
retrograde	2346 Aug 06 17:54	6°8'50"44		direct	2355 Jan 26 16:43	12°8'33"12	
min. Earth dist.	2346 Oct 28 07:49	5°8'52"05	47.95060 AU				
opposition	2346 Oct 29 19:08	5°8'50"24	-17°-10'-29	conjunction	2355 May 05 01:00	13°8'59"13	-15°-55'-22
direct	2347 Jan 19 04:26	4°8'51"23		minimum elong	2355 May 05 01:10	13°8'59"14	15°55'22
				max. Earth dist.	2355 May 06 05:54	14°8'00"52	50.24516 AU
conjunction	2347 Apr 27 05:06	6°8'18"17	-16°-28'-18		2355 Jun 22 19:11	15°8'	
minimum elong	2347 Apr 27 05:12	6°8'18"17	16°28'19	retrograde	2355 Aug 15 19:18	15°8'28"52	
max. Earth dist.	2347 Apr 28 17:58	6°8'20"25	49.89359 AU		2355 Oct 09 19:10	15°8'	
retrograde	2347 Aug 08 00:18	7°8'48"56		opposition	2355 Nov 07 15:38	14°8'29"09	-16°-31'-39
min. Earth dist.	2347 Oct 29 14:54	6°8'50"14	48.00742 AU	min. Earth dist.	2355 Nov 06 13:41	14°8'30"22	48.33797 AU
opposition	2347 Oct 31 00:25	6°8'48"39	-17°-7'-14	direct	2356 Jan 27 23:54	13°8'30"38	
direct	2348 Jan 20 10:46	5°8'49"40					
				conjunction	2356 May 05 06:26	14°8'56"36	-15°-50'-10
conjunction	2348 Apr 27 10:46	7°8'16"24	-16°-25'-6	minimum elong	2356 May 05 06:34	14°8'56"36	15°50'11
minimum elong	2348 Apr 27 10:54	7°8'16"24	16°25'07	max. Earth dist.	2356 May 06 08:44	14°8'58"06	50.26995 AU
max. Earth dist.	2348 Apr 28 22:25	7°8'18"27	49.94920 AU		2356 May 07 18:07	15°8'	
retrograde	2348 Aug 08 06:49	8°8'46"52		retrograde	2356 Aug 15 23:08	16°8'26"08	
min. Earth dist.	2348 Oct 29 19:43	7°8'48"13	48.06073 AU	opposition	2356 Nov 07 20:19	15°8'26"29	-16°-26'-7
opposition	2348 Oct 31 05:22	7°8'46"38	-17°-3'-43	min. Earth dist.	2356 Nov 06 19:43	15°8'27"38	48.35916 AU
direct	2349 Jan 20 14:14	6°8'47"41			2356 Dec 02 06:17	15°8'	
				direct	2357 Jan 28 06:25	14°8'28"00	
conjunction	2349 Apr 28 16:15	8°8'14"16	-16°-21'-38		2357 Mar 24 21:59	15°8'	
minimum elong	2349 Apr 28 16:22	8°8'14"16	16°21'38				
max. Earth dist.	2349 Apr 30 02:36	8°8'16"14	50.00146 AU	conjunction	2357 May 06 11:52	15°8'53"52	-15°-44'-45
retrograde	2349 Aug 09 12:26	9°8'44"34		minimum elong	2357 May 06 12:03	15°8'53"53	15°44'46
min. Earth dist.	2349 Oct 31 02:30	8°8'45"54	48.11093 AU	max. Earth dist.	2357 May 07 13:36	15°8'55"20	50.28928 AU
opposition	2349 Nov 01 10:32	8°8'44"23	-16°-59'-56	retrograde	2357 Aug 17 04:48	17°8'23"19	
direct	2350 Jan 21 18:18	7°8'45"29		min. Earth dist.	2357 Nov 08 02:23	16°8'24"45	48.37496 AU
				opposition	2357 Nov 09 01:02	16°8'23"41	-16°-20'-22
conjunction	2350 Apr 29 21:43	9°8'11"56	-16°-17'-54	direct	2358 Jan 29 12:38	15°8'25"13	
minimum elong	2350 Apr 29 21:51	9°8'11"57	16°17'55				
max. Earth dist.	2350 May 01 08:14	9°8'13"55	50.05080 AU	conjunction	2358 May 07 17:05	16°8'51"00	-15°-39'-7
retrograde	2350 Aug 10 14:41	10°8'42"06		minimum elong	2358 May 07 17:14	16°8'51"01	15°39'08
min. Earth dist.	2350 Nov 01 07:56	9°8'43"28	48.15803 AU	max. Earth dist.	2358 May 08 17:13	16°8'52"23	50.30368 AU

retrograde	2358 Aug 18 12:07	18°♄20'20		direct	2367 Feb 07 03:08	23°♄54'42	
min. Earth dist.	2358 Nov 09 07:07	17°♄21'48	48.38602 AU				
opposition	2358 Nov 10 05:34	17°♄20'45	-16°-14'-23	conjunction	2367 May 16 15:21	25°♄20'09	-14°-37'-37
direct	2359 Jan 30 15:24	16°♄22'16		minimum elong	2367 May 16 15:31	25°♄20'09	14°37'38
				max. Earth dist.	2367 May 17 06:12	25°♄20'59	50.27162 AU
conjunction	2359 May 08 22:20	17°♄47'59	-15°-33'-16	retrograde	2367 Aug 27 04:44	26°♄48'55	
minimum elong	2359 May 08 22:31	17°♄47'59	15°33'17	opposition	2367 Nov 18 20:37	25°♄49'33	-15°-9'-20
max. Earth dist.	2359 May 09 20:55	17°♄49'15	50.31349 AU	min. Earth dist.	2367 Nov 18 08:24	25°♄50'08	48.32758 AU
retrograde	2359 Aug 19 17:35	19°♄17'12		direct	2368 Feb 08 09:55	24°♄51'10	
opposition	2359 Nov 11 10:01	18°♄17'37	-16°-8'-9				
min. Earth dist.	2359 Nov 10 13:37	18°♄18'34	48.39292 AU	conjunction	2368 May 16 20:39	26°♄16'37	-14°-29'-37
direct	2360 Jan 31 18:35	17°♄19'09		minimum elong	2368 May 16 20:50	26°♄16'38	14°29'38
				max. Earth dist.	2368 May 17 09:43	26°♄17'21	50.24839 AU
conjunction	2360 May 09 03:39	18°♄44'47	-15°-27'-10	retrograde	2368 Aug 27 11:40	27°♄45'21	
minimum elong	2360 May 09 03:48	18°♄44'47	15°27'11	opposition	2368 Nov 19 00:53	26°♄46'01	-15°00'-56
max. Earth dist.	2360 May 10 02:06	18°♄46'03	50.31952 AU	min. Earth dist.	2368 Nov 18 13:03	26°♄46'34	48.30038 AU
retrograde	2360 Aug 19 19:18	20°♄13'53		direct	2369 Feb 08 13:07	25°♄47'37	
opposition	2360 Nov 11 14:25	19°♄14'20	-16°-1'-41				
min. Earth dist.	2360 Nov 10 18:26	19°♄15'16	48.39615 AU	conjunction	2369 May 18 01:43	27°♄13'04	-14°-21'-26
direct	2361 Feb 01 00:34	18°♄15'51		minimum elong	2369 May 18 01:53	27°♄13'04	14°21'27
				max. Earth dist.	2369 May 18 12:54	27°♄13'42	50.21975 AU
conjunction	2361 May 10 08:33	19°♄41'26	-15°-20'-49	retrograde	2369 Aug 28 17:49	28°♄41'46	
minimum elong	2361 May 10 08:43	19°♄41'26	15°20'51	opposition	2369 Nov 20 05:18	27°♄42'25	-14°-52'-19
max. Earth dist.	2361 May 11 05:03	19°♄42'36	50.32218 AU	min. Earth dist.	2369 Nov 19 19:45	27°♄42'52	48.26797 AU
retrograde	2361 Aug 20 23:15	21°♄10'27		direct	2370 Feb 09 15:57	26°♄44'00	
opposition	2361 Nov 12 18:51	20°♄10'54	-15°-54'-58				
min. Earth dist.	2361 Nov 11 23:34	20°♄11'48	48.39630 AU	conjunction	2370 May 19 07:01	28°♄09'27	-14°-13'-1
direct	2362 Feb 02 05:58	19°♄12'26		minimum elong	2370 May 19 07:13	28°♄09'28	14°13'02
				max. Earth dist.	2370 May 19 17:49	28°♄10'03	50.18623 AU
conjunction	2362 May 11 13:43	20°♄37'57	-15°-14'-14	retrograde	2370 Aug 29 20:45	29°♄38'07	
minimum elong	2362 May 11 13:52	20°♄37'58	15°14'15	opposition	2370 Nov 21 09:25	28°♄38'46	-14°-43'-29
max. Earth dist.	2362 May 12 10:06	20°♄39'07	50.32185 AU	min. Earth dist.	2370 Nov 21 00:31	28°♄39'11	48.23079 AU
retrograde	2362 Aug 22 03:09	22°♄06'55		direct	2371 Feb 10 21:19	27°♄40'18	
opposition	2362 Nov 13 23:13	21°♄07'23	-15°-47'-59				
min. Earth dist.	2362 Nov 13 05:22	21°♄08'13	48.39347 AU	conjunction	2371 May 20 12:10	29°♄05'46	-14°-4'-23
direct	2363 Feb 03 12:36	20°♄08'56		minimum elong	2371 May 20 12:20	29°♄05'47	14°04'24
				max. Earth dist.	2371 May 20 20:34	29°♄06'15	50.14824 AU
conjunction	2363 May 12 18:49	21°♄34'24	-15°-7'-23		2371 Jul 02 13:30	0°♄	
minimum elong	2363 May 12 19:00	21°♄34'25	15°07'25	retrograde	2371 Aug 31 00:45	0°♄34'25	
max. Earth dist.	2363 May 13 14:07	21°♄35'30	50.31877 AU		2371 Oct 30 15:19	30°♄	
retrograde	2363 Aug 23 10:09	23°♄03'18		opposition	2371 Nov 22 13:38	29°♄35'03	-14°-34'-25
min. Earth dist.	2363 Nov 14 09:36	22°♄04'39	48.38775 AU	min. Earth dist.	2371 Nov 22 05:51	29°♄35'25	48.18952 AU
opposition	2363 Nov 15 03:29	22°♄03'49	-15°-40'-44	direct	2372 Feb 12 02:32	28°♄36'33	
direct	2364 Feb 04 15:43	21°♄05'22			2372 May 19 05:15	0°♄	
conjunction	2364 May 12 23:51	22°♄30'49	-15°00'-18	conjunction	2372 May 20 17:21	0°♄02'02	-13°-55'-32
minimum elong	2364 May 13 00:01	22°♄30'50	15°00'18	minimum elong	2372 May 20 17:33	0°♄02'03	13°55'33
max. Earth dist.	2364 May 13 17:43	22°♄31'50	50.31258 AU	max. Earth dist.	2372 May 21 01:28	0°♄02'30	50.10629 AU
retrograde	2364 Aug 23 18:08	23°♄59'40		retrograde	2372 Aug 31 04:12	1°♄30'41	
opposition	2364 Nov 15 07:49	23°♄00'13	-15°-33'-14	opposition	2372 Nov 22 17:48	0°♄31'18	-14°-25'-7
min. Earth dist.	2364 Nov 14 15:45	23°♄00'58	48.37886 AU	min. Earth dist.	2372 Nov 22 11:32	0°♄31'36	48.14450 AU
direct	2365 Feb 04 16:36	22°♄01'47			2372 Dec 22 01:33	30°♄	
				direct	2373 Feb 12 08:50	29°♄32'46	
conjunction	2365 May 14 05:00	23°♄27'14	-14°-52'-58		2373 Apr 04 15:16	0°♄	
minimum elong	2365 May 14 05:10	23°♄27'15	14°53'00				
max. Earth dist.	2365 May 14 22:45	23°♄28'14	50.30315 AU	conjunction	2373 May 21 22:28	0°♄58'17	-13°-46'-26
retrograde	2365 Aug 24 21:24	24°♄56'03		minimum elong	2373 May 21 22:39	0°♄58'18	13°46'26
opposition	2365 Nov 16 12:02	23°♄56'38	-15°-25'-30	max. Earth dist.	2373 May 22 05:26	0°♄58'41	50.06109 AU
min. Earth dist.	2365 Nov 15 20:30	23°♄57'21	48.36630 AU	retrograde	2373 Sep 01 10:37	2°♄26'57	
direct	2366 Feb 05 21:42	22°♄58'14		opposition	2373 Nov 23 21:55	1°♄27'33	-14°-15'-34
				min. Earth dist.	2373 Nov 23 15:37	1°♄27'51	48.09642 AU
conjunction	2366 May 15 09:59	24°♄23'40	-14°-45'-24	direct	2374 Feb 13 12:05	0°♄29'00	
minimum elong	2366 May 15 10:10	24°♄23'41	14°45'24				
max. Earth dist.	2366 May 16 01:33	24°♄24'33	50.28976 AU	conjunction	2374 May 23 03:30	1°♄54'34	-13°-37'-6
retrograde	2366 Aug 26 00:54	25°♄52'28		minimum elong	2374 May 23 03:42	1°♄54'35	13°37'07
opposition	2366 Nov 17 16:23	24°♄53'05	-15°-17'-31	max. Earth dist.	2374 May 23 09:01	1°♄54'53	50.01281 AU
min. Earth dist.	2366 Nov 17 02:08	24°♄53'45	48.34949 AU	retrograde	2374 Sep 02 18:39	3°♄23'15	

opposition	2374 Nov 25 02:13	2°II23'52	-14°-5'-45	conjunction	2383 Jun 01 04:25	10°II26'37	-12°-2'-40
min. Earth dist.	2374 Nov 24 21:40	2°II24'04	48.04540 AU	minimum elong	2383 Jun 01 04:37	10°II26'37	12°02'41
direct	2375 Feb 14 13:10	1°II25'17		max. Earth dist.	2383 May 31 22:41	10°II26'17	49.40800 AU
				retrograde	2383 Sep 11 13:42	11°II55'50	
conjunction	2375 May 24 08:49	2°II50'55	-13°-27'-31	opposition	2383 Dec 03 17:05	10°II56'18	-12°-26'-51
minimum elong	2375 May 24 09:00	2°II50'56	13°27'31	min. Earth dist.	2383 Dec 03 22:37	10°II56'02	47.40793 AU
max. Earth dist.	2375 May 24 14:18	2°II51'14	49.96175 AU	direct	2384 Feb 23 08:47	9°II57'19	
retrograde	2375 Sep 03 22:43	4°II19'38					
opposition	2375 Nov 26 06:17	3°II20'15	-13°-55'-42	conjunction	2384 Jun 01 10:03	11°II23'51	-11°-51'-5
min. Earth dist.	2375 Nov 26 01:58	3°II20'27	47.99144 AU	minimum elong	2384 Jun 01 10:14	11°II23'51	11°51'05
direct	2376 Feb 15 17:15	2°II21'40		max. Earth dist.	2384 Jun 01 02:32	11°II23'25	49.31747 AU
				retrograde	2384 Sep 11 21:37	12°II53'09	
conjunction	2376 May 24 13:58	3°II47'23	-13°-17'-41	opposition	2384 Dec 03 21:39	11°II53'32	-12°-14'-43
minimum elong	2376 May 24 14:09	3°II47'24	13°17'43	min. Earth dist.	2384 Dec 04 05:07	11°II53'11	47.31414 AU
max. Earth dist.	2376 May 24 17:28	3°II47'35	49.90775 AU	direct	2385 Feb 23 11:22	10°II54'28	
retrograde	2376 Sep 04 02:41	5°II16'09					
opposition	2376 Nov 26 10:34	4°II16'47	-13°-45'-23	conjunction	2385 Jun 02 15:37	12°II21'07	-11°-39'-15
min. Earth dist.	2376 Nov 26 07:21	4°II16'56	47.93450 AU	minimum elong	2385 Jun 02 15:49	12°II21'07	11°39'16
direct	2377 Feb 15 22:09	3°II18'12		max. Earth dist.	2385 Jun 02 08:06	12°II20'41	49.22344 AU
				retrograde	2385 Sep 13 03:09	13°II50'29	
conjunction	2377 May 25 19:08	4°II44'01	-13°-7'-38	opposition	2385 Dec 05 02:08	12°II50'48	-12°-2'-20
minimum elong	2377 May 25 19:20	4°II44'02	13°07'38	min. Earth dist.	2385 Dec 05 09:49	12°II50'26	47.21695 AU
max. Earth dist.	2377 May 25 22:21	4°II44'12	49.85044 AU	direct	2386 Feb 24 15:08	11°II51'39	
retrograde	2377 Sep 05 05:34	6°II12'52					
opposition	2377 Nov 27 14:55	5°II13'30	-13°-34'-50	conjunction	2386 Jun 03 21:17	13°II18'26	-11°-27'-11
min. Earth dist.	2377 Nov 27 13:13	5°II13'35	47.87390 AU	minimum elong	2386 Jun 03 21:29	13°II18'26	11°27'12
direct	2378 Feb 17 05:39	4°II14'54		max. Earth dist.	2386 Jun 03 11:42	13°II17'53	49.12624 AU
				retrograde	2386 Sep 14 08:38	14°II47'54	
conjunction	2378 May 27 00:32	5°II40'49	-12°-57'-20	opposition	2386 Dec 06 06:38	13°II48'10	-11°-49'-42
minimum elong	2378 May 27 00:43	5°II40'50	12°57'22	min. Earth dist.	2386 Dec 06 15:28	13°II47'44	47.11685 AU
max. Earth dist.	2378 May 27 02:17	5°II40'55	49.78934 AU	direct	2387 Feb 25 19:29	12°II48'55	
retrograde	2378 Sep 06 13:06	7°II09'45					
opposition	2378 Nov 28 19:05	6°II10'24	-13°-24'-3	conjunction	2387 Jun 05 03:11	14°II15'51	-11°-14'-52
min. Earth dist.	2378 Nov 28 17:51	6°II10'28	47.80911 AU	minimum elong	2387 Jun 05 03:23	14°II15'52	11°14'54
direct	2379 Feb 18 08:47	5°II11'47		max. Earth dist.	2387 Jun 04 17:15	14°II15'17	49.02608 AU
				retrograde	2387 Sep 15 11:03	15°II45'27	
conjunction	2379 May 28 06:03	6°II37'49	-12°-46'-49	opposition	2387 Dec 07 11:19	14°II45'39	-11°-36'-48
minimum elong	2379 May 28 06:15	6°II37'49	12°46'50	min. Earth dist.	2387 Dec 07 21:22	14°II45'11	47.01376 AU
max. Earth dist.	2379 May 28 05:52	6°II37'48	49.72348 AU	direct	2388 Feb 27 03:15	13°II46'21	
retrograde	2379 Sep 07 20:49	8°II06'49					
opposition	2379 Nov 29 23:34	7°II07'28	-13°-13'-3	conjunction	2388 Jun 05 08:58	15°II13'27	-11°-2'-19
min. Earth dist.	2379 Nov 30 00:43	7°II07'24	47.73929 AU	minimum elong	2388 Jun 05 09:09	15°II13'28	11°02'19
direct	2380 Feb 19 10:31	6°II08'48		max. Earth dist.	2388 Jun 04 21:54	15°II12'49	48.92312 AU
				retrograde	2388 Sep 15 17:22	16°II43'12	
conjunction	2380 May 28 11:39	7°II34'56	-12°-36'-6	opposition	2388 Dec 07 15:54	15°II43'22	-11°-23'-39
minimum elong	2380 May 28 11:50	7°II34'57	12°36'07	min. Earth dist.	2388 Dec 08 02:02	15°II42'53	46.90774 AU
max. Earth dist.	2380 May 28 10:45	7°II34'53	49.65241 AU	direct	2389 Feb 27 07:39	14°II43'59	
retrograde	2380 Sep 08 01:18	9°II03'59					
opposition	2380 Nov 30 03:54	8°II04'37	-13°-1'-50	conjunction	2389 Jun 06 14:52	16°II11'18	-10°-49'-31
min. Earth dist.	2380 Nov 30 05:48	8°II04'32	47.66398 AU	minimum elong	2389 Jun 06 15:04	16°II11'18	10°49'32
direct	2381 Feb 19 15:24	7°II05'54		max. Earth dist.	2389 Jun 06 02:15	16°II10'34	48.81694 AU
				retrograde	2389 Sep 17 01:46	17°II41'13	
conjunction	2381 May 29 17:09	8°II32'09	-12°-25'-10	opposition	2389 Dec 08 20:42	16°II41'21	-11°-10'-15
minimum elong	2381 May 29 17:21	8°II32'09	12°25'11	min. Earth dist.	2389 Dec 09 08:58	16°II40'46	46.79838 AU
max. Earth dist.	2381 May 29 13:37	8°II31'57	49.57595 AU	direct	2390 Feb 28 09:40	15°II41'54	
retrograde	2381 Sep 09 05:30	10°II01'15					
opposition	2381 Dec 01 08:22	9°II01'50	-12°-50'-23	conjunction	2390 Jun 07 21:00	17°II09'25	-10°-36'-28
min. Earth dist.	2381 Dec 01 11:43	9°II01'40	47.58346 AU	minimum elong	2390 Jun 07 21:12	17°II09'26	10°36'28
direct	2382 Feb 20 20:33	8°II03'02		max. Earth dist.	2390 Jun 07 08:02	17°II08'41	48.70717 AU
				retrograde	2390 Sep 18 07:39	18°II39'31	
conjunction	2382 May 30 22:46	9°II29'23	-12°-14'-2	opposition	2390 Dec 10 01:29	17°II39'37	-10°-56'-36
minimum elong	2382 May 30 22:57	9°II29'23	12°14'02	min. Earth dist.	2390 Dec 10 14:13	17°II39'00	46.68491 AU
max. Earth dist.	2382 May 30 18:32	9°II29'08	49.49429 AU	direct	2391 Mar 01 14:37	16°II40'06	
retrograde	2382 Sep 10 08:22	10°II58'33		max. Earth dist.	2391 Jun 08 11:41	18°II06'58	48.59291 AU
opposition	2382 Dec 02 12:50	9°II59'04	-12°-38'-44				
min. Earth dist.	2382 Dec 02 17:59	9°II58'49	47.49787 AU	conjunction	2391 Jun 09 03:14	18°II07'52	-10°-23'-11
direct	2383 Feb 22 03:35	9°II00'11		minimum elong	2391 Jun 09 03:25	18°II07'52	10°23'12

retrograde	2391 Sep 19 13:43	19°II38'07		direct	2400 Mar 09 15:39	25°II33'56	
opposition	2391 Dec 11 06:21	18°II38'11	-10°-42'-43				
min. Earth dist.	2391 Dec 11 20:47	18°II37'29	46.56676 AU	conjunction	2400 Jun 17 15:14	27°II03'54	-8°-13'-12
direct	2392 Mar 01 19:25	17°II38'35		minimum elong	2400 Jun 17 15:25	27°II03'55	8°13'13
				max. Earth dist.	2400 Jun 16 13:32	27°II02'24	47.36686 AU
conjunction	2392 Jun 09 09:42	19°II06'35	-10°-9'-41	retrograde	2400 Sep 27 22:57	28°II36'02	
minimum elong	2392 Jun 09 09:54	19°II06'36	10°09'42	opposition	2400 Dec 19 06:10	27°II35'12	-8°-26'-40
max. Earth dist.	2392 Jun 08 17:22	19°II05'39	48.47361 AU	min. Earth dist.	2400 Dec 20 05:50	27°II34'03	45.31123 AU
retrograde	2392 Sep 19 17:39	20°II37'02		direct	2401 Mar 10 20:35	26°II34'26	
opposition	2392 Dec 11 11:28	19°II37'01	-10°-28'-36				
min. Earth dist.	2392 Dec 12 03:36	19°II36'15	46.44336 AU	conjunction	2401 Jun 18 22:15	28°II04'44	-7°-57'-29
direct	2393 Mar 03 02:50	18°II37'21		minimum elong	2401 Jun 18 22:25	28°II04'44	7°57'30
				max. Earth dist.	2401 Jun 17 18:31	28°II03'06	47.21514 AU
conjunction	2393 Jun 10 15:58	20°II05'33	-9°-55'-58	retrograde	2401 Sep 29 08:13	29°II37'08	
minimum elong	2393 Jun 10 16:09	20°II05'33	9°55'59	opposition	2401 Dec 20 12:03	28°II36'12	-8°-10'-12
max. Earth dist.	2393 Jun 09 21:54	20°II04'30	48.34923 AU	min. Earth dist.	2401 Dec 21 13:10	28°II34'59	45.15666 AU
retrograde	2393 Sep 20 23:40	21°II36'11		direct	2402 Mar 12 00:32	27°II35'19	
opposition	2393 Dec 12 16:34	20°II36'06	-10°-14'-15	max. Earth dist.	2402 Jun 19 01:44	29°II04'18	47.06016 AU
min. Earth dist.	2393 Dec 13 09:15	20°II35'18	46.31493 AU				
direct	2394 Mar 04 08:30	19°II36'18		conjunction	2402 Jun 20 05:48	29°II05'57	-7°-41'-32
				minimum elong	2402 Jun 20 05:57	29°II05'58	7°41'33
conjunction	2394 Jun 11 22:30	21°II04'43	-9°-42'-1		2402 Jul 30 23:35	0°☾	
minimum elong	2394 Jun 11 22:42	21°II04'44	9°42'03	retrograde	2402 Sep 30 13:57	0°☾38'38	
max. Earth dist.	2394 Jun 11 02:27	21°II03'34	48.21976 AU		2402 Dec 02 05:12	30°RII	
retrograde	2394 Sep 22 08:03	22°II35'33		opposition	2402 Dec 21 17:58	29°II37'37	-7°-53'-29
opposition	2394 Dec 13 21:43	21°II35'22	-9°-59'-40	min. Earth dist.	2402 Dec 22 20:31	29°II36'19	44.99846 AU
min. Earth dist.	2394 Dec 14 16:38	21°II34'27	46.18170 AU	direct	2403 Mar 13 08:28	28°II36'36	
direct	2395 Mar 05 12:01	20°II35'26			2403 Jun 16 04:55	0°☾	
max. Earth dist.	2395 Jun 12 08:45	22°II02'54	48.08585 AU	max. Earth dist.	2403 Jun 20 07:37	0°☾05'50	46.90130 AU
conjunction	2395 Jun 13 05:12	22°II04'05	-9°-27'-50	conjunction	2403 Jun 21 13:28	0°☾07'35	-7°-25'-19
minimum elong	2395 Jun 13 05:23	22°II04'06	9°27'51	minimum elong	2403 Jun 21 13:38	0°☾07'36	7°25'20
retrograde	2395 Sep 23 15:57	23°II35'05		retrograde	2403 Oct 01 20:31	1°☾40'35	
opposition	2395 Dec 15 02:52	22°II34'48	-9°-44'-50	opposition	2403 Dec 23 00:05	0°☾39'27	-7°-36'-30
min. Earth dist.	2395 Dec 15 22:11	22°II33'52	46.04423 AU	min. Earth dist.	2403 Dec 24 03:17	0°☾38'07	44.83607 AU
direct	2396 Mar 05 15:32	21°II34'44			2404 Jan 28 09:26	30°RII	
				direct	2404 Mar 13 15:16	29°II38'17	
conjunction	2396 Jun 13 11:40	23°II03'37	-9°-13'-25		2404 Apr 27 07:58	0°☾	
minimum elong	2396 Jun 13 11:51	23°II03'38	9°13'26				
max. Earth dist.	2396 Jun 12 12:59	23°II02'18	47.94795 AU	conjunction	2404 Jun 21 21:13	1°☾09'38	-7°-8'-52
retrograde	2396 Sep 23 23:18	24°II34'49		minimum elong	2404 Jun 21 21:22	1°☾09'38	7°08'53
opposition	2396 Dec 15 08:09	23°II34'25	-9°-29'-44	max. Earth dist.	2404 Jun 20 13:28	1°☾07'45	46.73773 AU
min. Earth dist.	2396 Dec 16 04:51	23°II33'25	45.90321 AU	retrograde	2404 Oct 02 04:03	2°☾42'56	
direct	2397 Mar 06 19:55	22°II34'12		opposition	2404 Dec 23 06:31	1°☾41'41	-7°-19'-16
				min. Earth dist.	2404 Dec 24 11:56	1°☾40'14	44.66884 AU
conjunction	2397 Jun 14 18:25	24°II03'20	-8°-58'-45	direct	2405 Mar 14 21:35	0°☾40'21	
minimum elong	2397 Jun 14 18:35	24°II03'21	8°58'45	max. Earth dist.	2405 Jun 21 20:53	2°☾10'07	46.56943 AU
max. Earth dist.	2397 Jun 13 19:24	24°II02'00	47.80668 AU				
retrograde	2397 Sep 25 01:31	25°II34'44		conjunction	2405 Jun 23 05:16	2°☾12'03	-6°-52'-10
opposition	2397 Dec 16 13:29	24°II34'13	-9°-14'-22	minimum elong	2405 Jun 23 05:26	2°☾12'03	6°52'11
min. Earth dist.	2397 Dec 17 11:15	24°II33'10	45.75905 AU	retrograde	2405 Oct 03 13:15	3°☾45'40	
direct	2398 Mar 08 04:53	23°II33'52		opposition	2405 Dec 24 12:53	2°☾44'16	-7°-1'-46
max. Earth dist.	2398 Jun 15 00:58	25°II01'51	47.66266 AU	min. Earth dist.	2405 Dec 25 18:46	2°☾42'47	44.49683 AU
				direct	2406 Mar 16 02:42	1°☾42'45	
conjunction	2398 Jun 16 01:09	25°II03'16	-8°-43'-49	max. Earth dist.	2406 Jun 23 02:19	3°☾12'44	46.39636 AU
minimum elong	2398 Jun 16 01:20	25°II03'16	8°43'50				
retrograde	2398 Sep 26 06:56	26°II34'53		conjunction	2406 Jun 24 13:21	3°☾14'49	-6°-35'-13
opposition	2398 Dec 17 18:54	25°II34'15	-8°-58'-45	minimum elong	2406 Jun 24 13:30	3°☾14'50	6°35'14
min. Earth dist.	2398 Dec 18 16:49	25°II33'11	45.61229 AU	retrograde	2406 Oct 04 23:23	4°☾48'45	
direct	2399 Mar 09 11:51	24°II33'45		opposition	2406 Dec 25 19:31	3°☾47'12	-6°-44'-1
max. Earth dist.	2399 Jun 16 06:30	26°II01'56	47.51593 AU	min. Earth dist.	2406 Dec 27 03:17	3°☾45'38	44.32032 AU
				direct	2407 Mar 17 07:17	2°☾45'29	
conjunction	2399 Jun 17 08:07	26°II03'26	-8°-28'-38	max. Earth dist.	2407 Jun 24 10:11	4°☾15'49	46.21887 AU
minimum elong	2399 Jun 17 08:18	26°II03'27	8°28'38				
retrograde	2399 Sep 27 15:28	27°II35'18		conjunction	2407 Jun 25 21:46	4°☾17'56	-6°-18'-2
opposition	2399 Dec 19 00:29	26°II34'34	-8°-42'-50	minimum elong	2407 Jun 25 21:55	4°☾17'57	6°18'03
min. Earth dist.	2399 Dec 20 00:13	26°II33'24	45.46301 AU	retrograde	2407 Oct 06 05:16	5°☾52'11	

opposition	2407 Dec 27 02:10	4° 50 '28	-6°-25'-59	max. Earth dist.	2416 Jul 03 09:49	14° 50 '08	44.48801 AU
min. Earth dist.	2407 Dec 28 11:03	4° 48 '50	44.13963 AU				
direct	2408 Mar 17 16:17	3° 48 '34		conjunction	2416 Jul 05 08:39	14° 50 '03	-3°-31'-24
max. Earth dist.	2408 Jun 24 16:59	5° 49 '10	46.03765 AU	minimum elong	2416 Jul 05 08:44	14° 50 '03	3°31'24
				retrograde	2416 Oct 15 18:12	15° 45 '07	
conjunction	2408 Jun 26 06:08	5° 42 '24	-6°00'-35	opposition	2417 Jan 04 22:55	14° 41 '59	-3°-31'00
minimum elong	2408 Jun 26 06:16	5° 42 '25	6°00'35	min. Earth dist.	2417 Jan 06 17:13	14° 39 '49	42.38642 AU
retrograde	2408 Oct 06 12:02	6° 55 '59		direct	2417 Mar 27 07:54	13° 38 '16	
opposition	2408 Dec 27 08:59	5° 54 '06	-6°-7'-41	max. Earth dist.	2417 Jul 04 19:48	15° 42 '36	44.27882 AU
min. Earth dist.	2408 Dec 28 18:23	5° 52 '26	43.95560 AU				
direct	2409 Mar 19 00:40	4° 52 '00		conjunction	2417 Jul 06 19:08	15° 45 '34	-3°-11'-34
max. Earth dist.	2409 Jun 26 00:07	6° 52 '55	45.85310 AU	minimum elong	2417 Jul 06 19:13	15° 45 '34	3°11'35
				retrograde	2417 Oct 17 04:31	16° 54 '07	
conjunction	2409 Jun 27 14:35	6° 52 '14	-5°-42'-52	opposition	2418 Jan 06 07:46	15° 50 '46	-3°-10'-8
minimum elong	2409 Jun 27 14:43	6° 52 '15	5°42'53	min. Earth dist.	2418 Jan 08 02:55	15° 48 '33	42.17420 AU
retrograde	2409 Oct 07 20:11	8° 00 '11		direct	2418 Mar 28 17:45	14° 46 '48	
opposition	2409 Dec 28 16:08	6° 58 '09	-5°-49'-6	max. Earth dist.	2418 Jul 06 04:22	16° 52 '33	44.06522 AU
min. Earth dist.	2409 Dec 30 03:22	6° 56 '23	43.76855 AU				
direct	2410 Mar 20 07:23	5° 55 '50		conjunction	2418 Jul 08 05:55	16° 52 '39	-2°-51'-28
max. Earth dist.	2410 Jun 27 08:40	7° 52 '09	45.66588 AU	minimum elong	2418 Jul 08 05:59	16° 52 '40	2°51'29
				retrograde	2418 Oct 18 15:40	18° 03 '42	
conjunction	2410 Jun 28 23:24	7° 52 '30	-5°-24'-53	opposition	2419 Jan 07 16:39	17° 00 '07	-2°-49'00
minimum elong	2410 Jun 28 23:31	7° 52 '31	5°24'54	min. Earth dist.	2419 Jan 09 12:59	16° 57 '50	41.95786 AU
retrograde	2410 Oct 09 05:15	9° 04 '50		direct	2419 Mar 30 03:55	15° 55 '53	
opposition	2410 Dec 29 23:10	8° 02 '38	-5°-30'-14	max. Earth dist.	2419 Jul 07 14:12	17° 53 '06	43.84744 AU
min. Earth dist.	2410 Dec 31 10:18	8° 00 '52	43.57902 AU				
direct	2411 Mar 21 13:40	7° 00 '07		conjunction	2419 Jul 09 17:02	17° 53 '18	-2°-31'-7
max. Earth dist.	2411 Jun 28 15:33	8° 03 '46	45.47622 AU	minimum elong	2419 Jul 09 17:06	17° 53 '19	2°31'08
				retrograde	2419 Oct 20 00:46	19° 03 '51	
conjunction	2411 Jun 30 08:19	8° 03 '14	-5°-6'-39	opposition	2420 Jan 09 02:00	18° 01 '01	-2°-27'-34
minimum elong	2411 Jun 30 08:27	8° 03 '15	5°06'41	min. Earth dist.	2420 Jan 11 00:11	18° 07 '38	41.73769 AU
retrograde	2411 Oct 10 17:05	10° 09 '59		direct	2420 Mar 30 15:04	17° 05 '30	
opposition	2411 Dec 31 06:40	9° 07 '37	-5°-11'-4	max. Earth dist.	2420 Jul 08 00:33	18° 41 '13	43.62625 AU
min. Earth dist.	2412 Jan 01 19:16	9° 05 '47	43.38731 AU				
direct	2412 Mar 21 18:29	8° 04 '55		conjunction	2420 Jul 10 04:07	18° 44 '30	-2°-10'-30
max. Earth dist.	2412 Jun 29 00:44	9° 03 '70	45.28435 AU	minimum elong	2420 Jul 10 04:11	18° 44 '30	2°10'31
				retrograde	2420 Oct 20 10:13	20° 24 '33	
conjunction	2412 Jun 30 17:25	9° 03 '31	-4°-48'-8	opposition	2421 Jan 09 11:24	19° 20 '29	-2°-5'-52
minimum elong	2412 Jun 30 17:32	9° 03 '32	4°48'09	min. Earth dist.	2421 Jan 11 09:36	19° 18 '04	41.51445 AU
retrograde	2412 Oct 11 01:52	11° 15 '41		direct	2421 Apr 01 01:14	18° 15 '39	
opposition	2412 Dec 31 14:18	10° 13 '10	-4°-51'-38	max. Earth dist.	2421 Jul 09 09:58	19° 51 '49	43.40209 AU
min. Earth dist.	2413 Jan 02 03:32	10° 11 '18	43.19332 AU				
direct	2413 Mar 23 03:13	9° 10 '17		conjunction	2421 Jul 11 15:32	19° 55 '14	-1°-49'-37
max. Earth dist.	2413 Jun 30 08:26	10° 42 '49	45.09026 AU	minimum elong	2421 Jul 11 15:35	19° 55 '14	1°49'38
				retrograde	2421 Oct 21 22:24	21° 35 '50	
conjunction	2413 Jul 02 02:43	10° 45 '24	-4°-29'-21	opposition	2422 Jan 10 21:06	20° 31 '30	-1°-43'-52
minimum elong	2413 Jul 02 02:49	10° 45 '25	4°29'23	min. Earth dist.	2422 Jan 12 21:08	20° 28 '59	41.28874 AU
retrograde	2413 Oct 12 11:32	12° 22 '01		direct	2422 Apr 02 08:52	19° 26 '22	
opposition	2414 Jan 01 22:00	11° 19 '22	-4°-31'-54	max. Earth dist.	2422 Jul 10 21:57	21° 03 '09	43.17568 AU
min. Earth dist.	2414 Jan 03 11:51	11° 17 '27	42.99699 AU				
direct	2414 Mar 24 10:55	10° 16 '18		conjunction	2422 Jul 13 03:23	21° 06 '34	-1°-28'-28
max. Earth dist.	2414 Jul 01 16:52	11° 49 '16	44.89325 AU	minimum elong	2422 Jul 13 03:25	21° 06 '35	1°28'29
				retrograde	2422 Oct 23 11:07	22° 47 '44	
conjunction	2414 Jul 03 12:25	11° 51 '57	-4°-10'-18	opposition	2423 Jan 12 07:06	21° 43 '08	-1°-21'-35
minimum elong	2414 Jul 03 12:31	11° 51 '57	4°10'18	min. Earth dist.	2423 Jan 14 07:19	21° 40 '36	41.06099 AU
retrograde	2414 Oct 13 18:43	13° 29 '02		direct	2423 Apr 03 18:02	20° 37 '42	
opposition	2415 Jan 03 06:07	12° 26 '14	-4°-11'-52	max. Earth dist.	2423 Jul 12 08:02	22° 15 '00	42.94746 AU
min. Earth dist.	2415 Jan 04 21:54	12° 24 '13	42.79744 AU				
direct	2415 Mar 25 20:16	11° 22 '59		conjunction	2423 Jul 14 15:19	22° 18 '34	-1°-7'-4
max. Earth dist.	2415 Jul 03 02:12	12° 56 '25	44.69275 AU	minimum elong	2423 Jul 14 15:21	22° 18 '34	1°07'04
				retrograde	2423 Oct 25 01:03	24° 00 '18	
conjunction	2415 Jul 04 22:25	12° 59 '10	-3°-50'-59	opposition	2424 Jan 13 17:20	22° 55 '27	0°-59'-1
minimum elong	2415 Jul 04 22:31	12° 59 '10	3°51'00	min. Earth dist.	2424 Jan 15 18:24	22° 52 '52	40.83182 AU
retrograde	2415 Oct 15 05:02	14° 36 '45		direct	2424 Apr 04 02:42	21° 49 '43	
opposition	2416 Jan 04 14:17	13° 33 '47	-3°-51'-34	max. Earth dist.	2424 Jul 12 20:01	23° 27 '40	42.71776 AU
min. Earth dist.	2416 Jan 06 06:27	13° 31 '44	42.59407 AU				
direct	2416 Mar 26 03:27	12° 30 '18		conjunction	2424 Jul 15 03:43	23° 31 '17	0°-45'-24

minimum elong	2424 Jul 15 03:44	23° \mathfrak{S} 31'17	0°45'25	min. Earth dist.	2432 Jan 26 01:50	3° \mathfrak{Q} 03'39	38.92176 AU
retrograde	2424 Oct 25 11:44	25° \mathfrak{S} 13'39		direct	2432 Apr 14 00:42	1° \mathfrak{Q} 58'37	
opposition	2425 Jan 14 04:02	24° \mathfrak{S} 08'33	0°-36'-10	max. Earth dist.	2432 Jul 23 03:40	3° \mathfrak{Q} 42'12	40.79630 AU
min. Earth dist.	2425 Jan 16 06:07	24° \mathfrak{S} 05'54	40.60129 AU				
direct	2425 Apr 05 15:04	23° \mathfrak{S} 02'32		conjunction	2432 Jul 25 20:10	3° \mathfrak{Q} 46'37	2°16'56
max. Earth dist.	2425 Jul 14 07:58	24° \mathfrak{S} 41'09	42.48681 AU	minimum elong	2432 Jul 25 20:06	3° \mathfrak{Q} 46'37	2°16'55
				retrograde	2432 Nov 05 04:35	5° \mathfrak{Q} 34'50	
conjunction	2425 Jul 16 16:15	24° \mathfrak{S} 44'49	0°-23'-28	opposition	2433 Jan 24 05:39	4° \mathfrak{Q} 27'36	2°36'27
minimum elong	2425 Jul 16 16:16	24° \mathfrak{S} 44'49	0°23'29	min. Earth dist.	2433 Jan 26 15:11	4° \mathfrak{Q} 24'25	38.67113 AU
retrograde	2425 Oct 26 23:37	26° \mathfrak{S} 27'51		direct	2433 Apr 15 13:15	3° \mathfrak{Q} 19'00	
opposition	2426 Jan 15 14:55	25° \mathfrak{S} 22'32	0°-13'-2	max. Earth dist.	2433 Jul 24 17:20	5° \mathfrak{Q} 03'19	40.54424 AU
min. Earth dist.	2426 Jan 17 17:02	25° \mathfrak{S} 19'51	40.36937 AU				
direct	2426 Apr 07 02:41	24° \mathfrak{S} 16'14		conjunction	2433 Jul 27 11:51	5° \mathfrak{Q} 07'54	2°40'46
max. Earth dist.	2426 Jul 15 19:19	25° \mathfrak{S} 55'28	42.25398 AU	minimum elong	2433 Jul 27 11:46	5° \mathfrak{Q} 07'53	2°40'47
				retrograde	2433 Nov 06 21:50	6° \mathfrak{Q} 56'56	
conjunction	2426 Jul 18 05:24	25° \mathfrak{S} 59'16	0°-1'-19	opposition	2434 Jan 25 19:37	5° \mathfrak{Q} 49'21	3°01'41
minimum elong	2426 Jul 18 05:23	25° \mathfrak{S} 59'16	0°01'21	min. Earth dist.	2434 Jan 28 06:44	5° \mathfrak{Q} 46'04	38.41912 AU
behind sun begin	2426 Jul 17 22:51	25° \mathfrak{S} 58'52		direct	2434 Apr 16 23:51	4° \mathfrak{Q} 40'22	
behind sun end	2426 Jul 18 11:55	25° \mathfrak{S} 59'40		max. Earth dist.	2434 Jul 26 09:52	6° \mathfrak{Q} 25'34	40.29094 AU
asc. node	2426 Aug 08 09:08	26° \mathfrak{S} 32'06					
retrograde	2426 Oct 28 13:01	27° \mathfrak{S} 43'00		conjunction	2434 Jul 29 04:13	6° \mathfrak{Q} 30'10	3°04'48
opposition	2427 Jan 17 02:10	26° \mathfrak{S} 37'27	0°10'22	minimum elong	2434 Jul 29 04:07	6° \mathfrak{Q} 30'10	3°04'48
min. Earth dist.	2427 Jan 19 06:19	26° \mathfrak{S} 34'39	40.13547 AU	retrograde	2434 Nov 08 14:43	8° \mathfrak{Q} 20'02	
direct	2427 Apr 08 11:26	25° \mathfrak{S} 30'52		opposition	2435 Jan 27 09:54	7° \mathfrak{Q} 12'08	3°27'08
max. Earth dist.	2427 Jul 17 08:44	27° \mathfrak{S} 10'51	42.01881 AU	min. Earth dist.	2435 Jan 29 21:16	7° \mathfrak{Q} 08'48	38.16626 AU
				direct	2435 Apr 18 14:36	6° \mathfrak{Q} 02'45	
conjunction	2427 Jul 19 18:57	27° \mathfrak{S} 14'42	0°21'10	max. Earth dist.	2435 Jul 28 01:10	7° \mathfrak{Q} 48'46	40.03712 AU
minimum elong	2427 Jul 19 18:57	27° \mathfrak{S} 14'42	0°21'11				
retrograde	2427 Oct 30 02:51	28° \mathfrak{S} 59'09		conjunction	2435 Jul 30 20:50	7° \mathfrak{Q} 53'30	3°29'02
opposition	2428 Jan 18 13:49	27° \mathfrak{S} 53'22	0°34'03	minimum elong	2435 Jul 30 20:43	7° \mathfrak{Q} 53'30	3°29'03
min. Earth dist.	2428 Jan 20 18:11	27° \mathfrak{S} 50'32	39.89892 AU	retrograde	2435 Nov 10 10:23	9° \mathfrak{Q} 44'13	
direct	2428 Apr 08 22:36	26° \mathfrak{S} 46'30		opposition	2436 Jan 29 00:43	8° \mathfrak{Q} 35'59	3°52'48
max. Earth dist.	2428 Jul 17 20:07	28° \mathfrak{S} 27'06	41.78064 AU	min. Earth dist.	2436 Jan 31 12:23	8° \mathfrak{Q} 32'37	37.91330 AU
				direct	2436 Apr 19 05:24	7° \mathfrak{Q} 26'12	
conjunction	2428 Jul 20 08:38	28° \mathfrak{S} 31'08	0°43'50	max. Earth dist.	2436 Jul 28 17:52	9° \mathfrak{Q} 13'10	39.78310 AU
minimum elong	2428 Jul 20 08:36	28° \mathfrak{S} 31'08	0°43'50				
	2428 Sep 24 05:40	0° \mathfrak{Q}		conjunction	2436 Jul 31 13:52	9° \mathfrak{Q} 17'57	3°53'28
retrograde	2428 Oct 30 20:00	0° \mathfrak{Q} 16'18		minimum elong	2436 Jul 31 13:45	9° \mathfrak{Q} 17'57	3°53'27
	2428 Dec 06 14:10	30° \mathfrak{R} \mathfrak{S}		retrograde	2436 Nov 11 03:44	11° \mathfrak{Q} 09'35	
opposition	2429 Jan 19 01:55	29° \mathfrak{S} 10'16	0°58'00	opposition	2437 Jan 29 16:07	10° \mathfrak{Q} 01'00	4°18'41
min. Earth dist.	2429 Jan 21 07:51	29° \mathfrak{S} 07'21	39.65934 AU	min. Earth dist.	2437 Feb 01 04:53	9° \mathfrak{Q} 57'34	37.66040 AU
direct	2429 Apr 10 08:22	28° \mathfrak{S} 03'06		direct	2437 Apr 20 21:05	8° \mathfrak{Q} 50'51	
max. Earth dist.	2429 Jul 19 09:55	29° \mathfrak{S} 44'28	41.53910 AU	max. Earth dist.	2437 Jul 30 11:17	10° \mathfrak{Q} 38'46	39.52931 AU
conjunction	2429 Jul 21 23:00	29° \mathfrak{S} 48'33	1°06'45	conjunction	2437 Aug 02 07:30	10° \mathfrak{Q} 43'37	4°18'03
minimum elong	2429 Jul 21 22:58	29° \mathfrak{S} 48'33	1°06'46	minimum elong	2437 Aug 02 07:21	10° \mathfrak{Q} 43'37	4°18'02
	2429 Jul 29 02:01	0° \mathfrak{Q}		retrograde	2437 Nov 12 20:02	12° \mathfrak{Q} 36'10	
retrograde	2429 Nov 01 10:52	1° \mathfrak{Q} 34'28		opposition	2438 Jan 31 07:43	11° \mathfrak{Q} 27'17	4°44'44
opposition	2430 Jan 20 14:17	0° \mathfrak{Q} 28'09	1°22'14	min. Earth dist.	2438 Feb 02 20:09	11° \mathfrak{Q} 23'50	37.40771 AU
min. Earth dist.	2430 Jan 22 21:30	0° \mathfrak{Q} 25'09	39.41639 AU	direct	2438 Apr 22 13:23	10° \mathfrak{Q} 16'46	
	2430 Feb 11 19:50	30° \mathfrak{R} \mathfrak{S}		max. Earth dist.	2438 Aug 01 03:53	12° \mathfrak{Q} 05'35	39.27530 AU
direct	2430 Apr 11 21:44	29° \mathfrak{S} 20'39					
	2430 Jun 08 20:54	0° \mathfrak{Q}		conjunction	2438 Aug 04 01:43	12° \mathfrak{Q} 10'36	4°42'47
max. Earth dist.	2430 Jul 20 22:56	1° \mathfrak{Q} 02'43	41.29437 AU	minimum elong	2438 Aug 04 01:34	12° \mathfrak{Q} 10'35	4°42'47
				retrograde	2438 Nov 14 13:45	14° \mathfrak{Q} 04'07	
conjunction	2430 Jul 23 13:39	1° \mathfrak{Q} 06'57	1°29'55	opposition	2439 Feb 02 00:05	12° \mathfrak{Q} 54'55	5°10'58
minimum elong	2430 Jul 23 13:37	1° \mathfrak{Q} 06'57	1°29'54	min. Earth dist.	2439 Feb 04 14:10	12° \mathfrak{Q} 51'21	37.15475 AU
retrograde	2430 Nov 03 01:41	2° \mathfrak{Q} 53'37		direct	2439 Apr 24 03:27	11° \mathfrak{Q} 44'01	
opposition	2431 Jan 22 03:01	1° \mathfrak{Q} 47'01	1°46'43	max. Earth dist.	2439 Aug 02 23:01	13° \mathfrak{Q} 33'55	39.02063 AU
min. Earth dist.	2431 Jan 24 10:47	1° \mathfrak{Q} 43'58	39.17043 AU				
direct	2431 Apr 13 11:07	0° \mathfrak{Q} 39'09		conjunction	2439 Aug 05 20:30	13° \mathfrak{Q} 38'57	5°07'40
max. Earth dist.	2431 Jul 22 12:22	2° \mathfrak{Q} 21'56	41.04650 AU	minimum elong	2439 Aug 05 20:20	13° \mathfrak{Q} 38'56	5°07'40
					2439 Sep 26 12:15	15° \mathfrak{Q}	
conjunction	2431 Jul 25 04:43	2° \mathfrak{Q} 26'19	1°53'19	retrograde	2439 Nov 16 08:15	15° \mathfrak{Q} 33'28	
minimum elong	2431 Jul 25 04:40	2° \mathfrak{Q} 26'18	1°53'19		2440 Jan 07 06:12	15° \mathfrak{R} \mathfrak{Q}	
retrograde	2431 Nov 04 14:13	4° \mathfrak{Q} 13'44		opposition	2440 Feb 03 16:54	14° \mathfrak{Q} 23'57	5°37'22
opposition	2432 Jan 23 16:12	3° \mathfrak{Q} 06'50	2°11'28	min. Earth dist.	2440 Feb 06 07:01	14° \mathfrak{Q} 20'22	36.90090 AU

direct	2440 Apr 24 18:39	13°012'39		direct	2448 May 06 23:18	25°052'50	
	2440 Aug 01 16:19	15°00		max. Earth dist.	2448 Aug 16 19:56	27°052'46	36.68622 AU
max. Earth dist.	2440 Aug 03 16:20	15°003'29	38.76477 AU				
conjunction	2440 Aug 06 15:47	15°008'42	5°32'41	conjunction	2448 Aug 19 23:49	27°058'42	8°55'07
minimum elong	2440 Aug 06 15:37	15°008'41	5°32'41	minimum elong	2448 Aug 19 23:31	27°058'41	8°55'07
retrograde	2440 Nov 17 05:57	17°004'15			2448 Nov 15 23:56	0°00	
opposition	2441 Feb 04 10:19	15°054'23	6°03'55	retrograde	2448 Nov 30 19:11	0°003'13	
min. Earth dist.	2441 Feb 07 01:44	15°050'42	36.64587 AU		2448 Dec 15 14:51	30°000	
	2441 Mar 20 18:51	15°000		opposition	2449 Feb 17 03:15	28°050'10	9°39'04
direct	2441 Apr 26 09:28	14°0042'42		min. Earth dist.	2449 Feb 19 23:03	28°046'01	34.58419 AU
	2441 Jun 01 19:25	15°00		direct	2449 May 08 21:54	27°034'49	
max. Earth dist.	2441 Aug 05 12:00	16°0034'36	38.50731 AU	max. Earth dist.	2449 Aug 18 20:29	29°036'02	36.43068 AU
conjunction	2441 Aug 08 11:48	16°0039'52	5°57'49	conjunction	2449 Aug 22 00:34	29°042'03	9°20'15
minimum elong	2441 Aug 08 11:36	16°0039'52	5°57'49	minimum elong	2449 Aug 22 00:15	29°042'02	9°20'14
retrograde	2441 Nov 19 02:59	18°0036'28			2449 Aug 31 11:56	0°00	
opposition	2442 Feb 06 04:26	17°0026'14	6°30'37	retrograde	2449 Dec 02 22:23	1°0047'50	
min. Earth dist.	2442 Feb 08 20:50	17°0022'29	36.38918 AU	opposition	2450 Feb 19 02:15	0°0034'23	10°05'47
direct	2442 Apr 28 04:11	16°0014'07		min. Earth dist.	2450 Feb 21 21:22	0°0030'16	34.33234 AU
max. Earth dist.	2442 Aug 07 07:15	18°0007'03	38.24829 AU		2450 Mar 15 05:54	30°000	
conjunction	2442 Aug 10 08:21	18°0012'28	6°23'03	direct	2450 May 10 20:57	29°018'36	
minimum elong	2442 Aug 10 08:09	18°0012'27	6°23'03		2450 Jul 05 01:55	0°00	
retrograde	2442 Nov 21 02:02	20°0010'06		max. Earth dist.	2450 Aug 20 21:38	1°0021'09	36.17732 AU
opposition	2443 Feb 07 22:54	18°0059'30	6°57'25	conjunction	2450 Aug 24 02:14	1°0027'16	9°45'13
min. Earth dist.	2443 Feb 10 15:34	18°0055'42	36.13116 AU	minimum elong	2450 Aug 24 01:55	1°0027'15	9°45'14
direct	2443 Apr 29 23:11	17°0046'56		retrograde	2450 Dec 04 23:47	3°0034'20	
max. Earth dist.	2443 Aug 09 03:17	19°0040'55	37.98782 AU	opposition	2451 Feb 21 02:05	2°0020'32	10°32'21
conjunction	2443 Aug 12 05:33	19°0046'28	6°48'22	min. Earth dist.	2451 Feb 23 22:21	2°0016'18	34.08274 AU
minimum elong	2443 Aug 12 05:19	19°0046'27	6°48'21	direct	2451 May 12 19:33	1°0004'19	
retrograde	2443 Nov 22 22:18	21°0045'11		max. Earth dist.	2451 Aug 23 00:44	3°0008'18	35.92613 AU
opposition	2444 Feb 09 18:13	20°0034'11	7°24'19	conjunction	2451 Aug 26 04:36	3°0014'26	10°10'00
min. Earth dist.	2444 Feb 12 12:31	20°0030'15	35.87210 AU	minimum elong	2451 Aug 26 04:16	3°0014'24	10°10'00
direct	2444 Apr 30 17:56	19°0021'10		retrograde	2451 Dec 07 02:42	5°0022'49	
max. Earth dist.	2444 Aug 10 00:53	21°0016'17	37.72660 AU	opposition	2452 Feb 23 02:40	4°0008'39	10°58'42
conjunction	2444 Aug 13 03:05	21°0021'54	7°13'44	min. Earth dist.	2452 Feb 25 22:11	4°0004'26	33.83513 AU
minimum elong	2444 Aug 13 02:51	21°0021'53	7°13'44	direct	2452 May 13 19:42	2°0051'59	
retrograde	2444 Nov 23 18:55	23°0021'42		max. Earth dist.	2452 Aug 24 02:24	4°0057'17	35.67654 AU
opposition	2445 Feb 10 13:54	22°0010'18	7°51'17	conjunction	2452 Aug 27 07:33	5°0003'34	10°34'33
min. Earth dist.	2445 Feb 13 07:52	22°0006'22	35.61263 AU	minimum elong	2452 Aug 27 07:13	5°0003'32	10°34'34
direct	2445 May 02 13:59	20°0056'49		retrograde	2452 Dec 08 06:34	7°0013'19	
max. Earth dist.	2445 Aug 11 21:24	22°0053'00	37.46509 AU	opposition	2453 Feb 24 04:06	5°0058'45	11°24'49
conjunction	2445 Aug 15 01:19	22°0058'47	7°39'07	min. Earth dist.	2453 Feb 27 00:50	5°0054'26	33.58914 AU
minimum elong	2445 Aug 15 01:03	22°0058'46	7°39'07	direct	2453 May 15 17:24	4°0041'38	
retrograde	2445 Nov 25 17:22	24°0059'43		max. Earth dist.	2453 Aug 26 07:13	6°0048'24	35.42834 AU
opposition	2446 Feb 12 10:11	23°0047'54	8°18'16	conjunction	2453 Aug 29 11:36	6°0054'41	10°58'51
min. Earth dist.	2446 Feb 15 05:33	23°0043'51	35.35344 AU	minimum elong	2453 Aug 29 11:14	6°0054'40	10°58'50
direct	2446 May 04 07:05	22°0033'56		retrograde	2453 Dec 10 09:31	9°0005'47	
max. Earth dist.	2446 Aug 13 21:04	24°0031'22	37.20405 AU	opposition	2454 Feb 26 06:14	7°0050'49	11°50'40
conjunction	2446 Aug 17 00:18	24°0037'10	8°04'31	min. Earth dist.	2454 Mar 01 02:43	7°0046'29	33.34447 AU
minimum elong	2446 Aug 17 00:02	24°0037'08	8°04'31	direct	2454 May 17 19:05	6°0033'14	
retrograde	2446 Nov 27 15:46	26°0039'15		max. Earth dist.	2454 Aug 28 10:37	8°0041'19	35.18154 AU
opposition	2447 Feb 14 07:12	25°0027'01	8°45'16	conjunction	2454 Aug 31 16:18	8°0047'46	11°22'50
min. Earth dist.	2447 Feb 17 02:18	25°0022'58	35.09512 AU	minimum elong	2454 Aug 31 15:56	8°0047'45	11°22'50
direct	2447 May 06 03:11	24°0012'35		retrograde	2454 Dec 12 16:10	11°0000'13	
max. Earth dist.	2447 Aug 15 19:16	26°0011'11	36.94423 AU	opposition	2455 Feb 28 09:15	9°0044'49	12°16'10
conjunction	2447 Aug 18 23:36	26°0017'06	8°29'51	min. Earth dist.	2455 Mar 03 06:05	9°0040'27	33.10143 AU
minimum elong	2447 Aug 18 23:19	26°0017'05	8°29'51	direct	2455 May 19 19:54	8°0026'45	
retrograde	2447 Nov 29 17:48	28°0020'23		max. Earth dist.	2455 Aug 30 16:45	10°0036'19	34.93631 AU
opposition	2448 Feb 16 04:51	27°0007'44	9°12'12	conjunction	2455 Sep 02 21:47	10°0042'47	11°46'27
min. Earth dist.	2448 Feb 19 00:14	27°0003'39	34.83857 AU	minimum elong	2455 Sep 02 21:25	10°0042'45	11°46'26
				retrograde	2455 Dec 14 21:20	12°0056'36	

opposition	2456 Mar 01 13:10	11° \mathring{M} 40'45	12°41'17	max. Earth dist.	2464 Sep 18 10:56	29° \mathring{M} 18'53	32.91414 AU
min. Earth dist.	2456 Mar 04 10:25	11° \mathring{M} 36'19	32.86022 AU				
direct	2456 May 20 22:31	10° \mathring{M} 22'11		conjunction	2464 Sep 21 09:12	29° \mathring{M} 25'19	14°51'30
max. Earth dist.	2456 Aug 31 22:38	12° \mathring{M} 33'09	34.69338 AU	minimum elong	2464 Sep 21 08:51	29° \mathring{M} 25'17	14°51'31
					2464 Oct 07 06:30	0° \underline{A}	
conjunction	2456 Sep 04 03:56	12° \mathring{M} 39'42	12°09'39	retrograde	2465 Jan 02 16:13	1° \underline{A} 51'35	
minimum elong	2456 Sep 04 03:34	12° \mathring{M} 39'40	12°09'39	opposition	2465 Mar 20 13:13	0° \underline{A} 32'02	15°57'08
retrograde	2456 Dec 16 06:04	14° \mathring{M} 54'52		min. Earth dist.	2465 Mar 23 05:04	0° \underline{A} 27'43	30.88826 AU
opposition	2457 Mar 03 17:37	13° \mathring{M} 38'34	13°05'56		2465 Apr 09 19:18	30° \mathring{R} \mathring{M}	
min. Earth dist.	2457 Mar 06 14:14	13° \mathring{M} 34'09	32.62167 AU	direct	2465 Jun 08 13:54	29° \mathring{M} 09'23	
direct	2457 May 23 03:28	12° \mathring{M} 19'29			2465 Aug 05 07:11	0° \underline{A}	
max. Earth dist.	2457 Sep 03 05:41	14° \mathring{M} 31'53	34.45320 AU	max. Earth dist.	2465 Sep 21 01:08	1° \underline{A} 34'08	32.71865 AU
conjunction	2457 Sep 06 10:59	14° \mathring{M} 38'30	12°32'21	conjunction	2465 Sep 23 22:31	1° \underline{A} 40'33	15°07'40
minimum elong	2457 Sep 06 10:36	14° \mathring{M} 38'28	12°32'21	minimum elong	2465 Sep 23 22:10	1° \underline{A} 40'31	15°07'39
retrograde	2457 Dec 18 14:12	16° \mathring{M} 55'01		retrograde	2466 Jan 05 08:14	4° \underline{A} 08'11	
opposition	2458 Mar 05 23:08	15° \mathring{M} 38'15	13°30'04	opposition	2466 Mar 23 01:40	2° \underline{A} 48'17	16°14'05
min. Earth dist.	2458 Mar 08 20:27	15° \mathring{M} 33'46	32.38628 AU	min. Earth dist.	2466 Mar 25 15:45	2° \underline{A} 44'04	30.69828 AU
direct	2458 May 25 09:00	14° \mathring{M} 18'40		direct	2466 Jun 11 02:27	1° \underline{A} 25'16	
max. Earth dist.	2458 Sep 05 14:24	16° \mathring{M} 32'35	34.21669 AU	max. Earth dist.	2466 Sep 23 16:13	3° \underline{A} 51'30	32.52892 AU
conjunction	2458 Sep 08 18:42	16° \mathring{M} 39'11	12°54'31	conjunction	2466 Sep 26 12:41	3° \underline{A} 57'53	15°22'42
minimum elong	2458 Sep 08 18:19	16° \mathring{M} 39'09	12°54'32	minimum elong	2466 Sep 26 12:22	3° \underline{A} 57'52	15°22'42
retrograde	2458 Dec 20 23:10	18° \mathring{M} 57'03		retrograde	2467 Jan 07 23:42	6° \underline{A} 26'51	
opposition	2459 Mar 08 05:18	17° \mathring{M} 39'50	13°53'35	opposition	2467 Mar 25 15:09	5° \underline{A} 06'37	16°29'48
min. Earth dist.	2459 Mar 11 01:11	17° \mathring{M} 35'24	32.15497 AU	min. Earth dist.	2467 Mar 28 05:17	5° \underline{A} 02'23	30.51406 AU
direct	2459 May 27 16:08	16° \mathring{M} 19'44		direct	2467 Jun 13 15:02	3° \underline{A} 43'15	
max. Earth dist.	2459 Sep 07 22:43	18° \mathring{M} 35'05	33.98462 AU	max. Earth dist.	2467 Sep 26 08:52	6° \underline{A} 11'00	32.34542 AU
conjunction	2459 Sep 11 03:07	18° \mathring{M} 41'46	13°16'03	conjunction	2467 Sep 29 03:34	6° \underline{A} 17'16	15°36'32
minimum elong	2459 Sep 11 02:44	18° \mathring{M} 41'44	13°16'03	minimum elong	2467 Sep 29 03:16	6° \underline{A} 17'14	15°36'31
retrograde	2459 Dec 23 07:23	21° \mathring{M} 01'01		retrograde	2468 Jan 10 16:07	8° \underline{A} 47'31	
opposition	2460 Mar 09 12:30	19° \mathring{M} 43'21	14°16'24	opposition	2468 Mar 27 05:22	7° \underline{A} 26'57	16°44'13
min. Earth dist.	2460 Mar 12 08:39	19° \mathring{M} 38'52	31.92868 AU	min. Earth dist.	2468 Mar 29 17:20	7° \underline{A} 22'50	30.33597 AU
direct	2460 May 28 21:01	18° \mathring{M} 22'45		direct	2468 Jun 15 06:01	6° \underline{A} 03'13	
max. Earth dist.	2460 Sep 09 09:54	20° \mathring{M} 39'43	33.75802 AU	max. Earth dist.	2468 Sep 28 01:00	8° \underline{A} 32'19	32.16835 AU
conjunction	2460 Sep 12 12:14	20° \mathring{M} 46'17	13°36'52	conjunction	2468 Sep 30 19:04	8° \underline{A} 38'35	15°49'05
minimum elong	2460 Sep 12 11:52	20° \mathring{M} 46'15	13°36'52	minimum elong	2468 Sep 30 18:47	8° \underline{A} 38'33	15°49'05
retrograde	2460 Dec 24 16:18	23° \mathring{M} 06'55		retrograde	2469 Jan 12 08:05	11° \underline{A} 10'03	
opposition	2461 Mar 11 20:30	21° \mathring{M} 48'49	14°38'26	opposition	2469 Mar 29 20:28	9° \underline{A} 49'08	16°57'13
min. Earth dist.	2461 Mar 14 15:07	21° \mathring{M} 44'25	31.70806 AU	min. Earth dist.	2469 Apr 01 08:10	9° \underline{A} 45'02	30.16444 AU
direct	2461 May 31 04:26	20° \mathring{M} 27'46		direct	2469 Jun 17 19:08	8° \underline{A} 25'03	
max. Earth dist.	2461 Sep 11 19:44	22° \mathring{M} 46'11	33.53748 AU	max. Earth dist.	2469 Sep 30 19:55	10° \underline{A} 55'38	31.99833 AU
conjunction	2461 Sep 14 22:13	22° \mathring{M} 52'49	13°56'54	conjunction	2469 Oct 03 11:23	11° \underline{A} 01'42	16°00'17
minimum elong	2461 Sep 14 21:50	22° \mathring{M} 52'47	13°56'53	minimum elong	2469 Oct 03 11:07	11° \underline{A} 01'40	16°00'16
retrograde	2461 Dec 27 03:37	25° \mathring{M} 14'51		retrograde	2470 Jan 15 01:08	13° \underline{A} 34'19	
opposition	2462 Mar 14 05:13	23° \mathring{M} 56'22	14°59'36	opposition	2470 Apr 01 12:11	12° \underline{A} 13'05	17°08'44
min. Earth dist.	2462 Mar 16 23:21	23° \mathring{M} 51'58	31.49376 AU	min. Earth dist.	2470 Apr 03 21:51	12° \underline{A} 09'05	29.99994 AU
direct	2462 Jun 02 09:59	22° \mathring{M} 34'52		direct	2470 Jun 20 11:10	10° \underline{A} 48'39	
max. Earth dist.	2462 Sep 14 08:48	24° \mathring{M} 54'57	33.32336 AU	max. Earth dist.	2470 Oct 03 13:28	13° \underline{A} 20'28	31.83598 AU
conjunction	2462 Sep 17 09:10	25° \mathring{M} 01'28	14°16'03	conjunction	2470 Oct 06 04:12	13° \underline{A} 26'30	16°10'02
minimum elong	2462 Sep 17 08:48	25° \mathring{M} 01'26	14°16'03	minimum elong	2470 Oct 06 03:58	13° \underline{A} 26'29	16°10'02
retrograde	2462 Dec 29 13:49	27° \mathring{M} 24'55		retrograde	2471 Jan 17 18:33	16° \underline{A} 00'13	
opposition	2463 Mar 16 15:03	26° \mathring{M} 06'03	15°19'49	opposition	2471 Apr 04 04:47	14° \underline{A} 38'40	17°18'39
min. Earth dist.	2463 Mar 19 08:14	26° \mathring{M} 01'41	31.28574 AU	min. Earth dist.	2471 Apr 06 13:15	14° \underline{A} 34'45	29.84345 AU
direct	2463 Jun 04 18:35	24° \mathring{M} 44'10		direct	2471 Jun 23 01:32	13° \underline{A} 13'55	
max. Earth dist.	2463 Sep 16 20:40	27° \mathring{M} 05'45	33.11570 AU	max. Earth dist.	2471 Oct 06 10:03	15° \underline{A} 47'06	31.68222 AU
conjunction	2463 Sep 19 20:37	27° \mathring{M} 12'17	14°34'17	conjunction	2471 Oct 08 21:30	15° \underline{A} 52'53	16°18'15
minimum elong	2463 Sep 19 20:15	27° \mathring{M} 12'15	14°34'16	minimum elong	2471 Oct 08 21:18	15° \underline{A} 52'51	16°18'14
retrograde	2464 Jan 01 03:39	29° \mathring{M} 37'09		retrograde	2472 Jan 20 10:27	18° \underline{A} 27'38	
opposition	2464 Mar 18 01:40	28° \mathring{M} 17'57	15°39'01	opposition	2472 Apr 05 22:09	17° \underline{A} 05'47	17°26'54
min. Earth dist.	2464 Mar 20 17:35	28° \mathring{M} 13'39	31.08406 AU	min. Earth dist.	2472 Apr 08 04:32	17° \underline{A} 01'59	29.69561 AU
direct	2464 Jun 06 04:01	26° \mathring{M} 55'40		direct	2472 Jun 24 18:55	15° \underline{A} 40'43	

max. Earth dist.	2472 Oct 08 05:10	18° 2 15'03	31.53793 AU	max. Earth dist.	2480 Oct 29 17:48	8° 1 43'50	30.76139 AU
conjunction	2472 Oct 10 15:18	18° 2 20'44	16°24'51	conjunction	2480 Oct 31 05:23	8° 1 47'26	16°13'17
minimum elong	2472 Oct 10 15:09	18° 2 20'43	16°24'52	minimum elong	2480 Oct 31 05:32	8° 1 47'26	16°13'17
retrograde	2473 Jan 22 05:18	20° 5 56'28		retrograde	2481 Feb 11 23:05	11° 1 28'08	
opposition	2473 Apr 08 15:57	19° 2 34'20	17°33'22	opposition	2481 Apr 29 12:13	10° 1 04'55	17°15'03
min. Earth dist.	2473 Apr 10 20:01	19° 2 30'41	29.55749 AU	min. Earth dist.	2481 Apr 30 21:17	10° 1 02'34	28.81911 AU
direct	2473 Jun 27 11:11	18° 2 08'59		direct	2481 Jul 18 06:24	8° 1 38'47	
max. Earth dist.	2473 Oct 11 03:10	20° 2 44'38	31.40386 AU	max. Earth dist.	2481 Nov 01 16:23	11° 1 20'45	30.71010 AU
conjunction	2473 Oct 13 09:51	20° 2 50'00	16°29'46	conjunction	2481 Nov 03 02:12	11° 1 24'10	16°03'29
minimum elong	2473 Oct 13 09:42	20° 2 49'59	16°29'46	minimum elong	2481 Nov 03 02:21	11° 1 24'11	16°03'29
retrograde	2474 Jan 24 22:56	23° 2 26'39		retrograde	2482 Feb 14 20:50	14° 1 05'02	
opposition	2474 Apr 11 10:43	22° 2 04'16	17°37'59	opposition	2482 May 02 10:26	12° 1 41'45	17°03'42
min. Earth dist.	2474 Apr 13 13:00	22° 2 00'44	29.42949 AU	min. Earth dist.	2482 May 03 17:06	12° 1 39'35	28.77115 AU
direct	2474 Jun 30 03:54	20° 2 38'43		direct	2482 Jul 21 04:07	11° 1 15'37	
max. Earth dist.	2474 Oct 13 23:58	23° 2 15'25	31.28062 AU	conjunction	2482 Nov 05 22:57	14° 1 01'00	15°51'48
conjunction	2474 Oct 16 04:36	23° 2 20'37	16°32'56	minimum elong	2482 Nov 05 23:10	14° 1 01'01	15°51'48
minimum elong	2474 Oct 16 04:31	23° 2 20'37	16°32'57	max. Earth dist.	2482 Nov 04 17:10	13° 1 57'59	30.66921 AU
retrograde	2475 Jan 27 18:42	25° 2 58'07			2482 Nov 30 18:50	15° 1	
opposition	2475 Apr 14 05:57	24° 2 35'33	17°40'41	retrograde	2483 Feb 17 16:05	16° 1 41'55	
min. Earth dist.	2475 Apr 16 05:05	24° 2 32'14	29.31212 AU	opposition	2483 May 05 08:48	15° 1 18'35	16°50'22
direct	2475 Jul 02 23:31	23° 2 09'49		min. Earth dist.	2483 May 06 12:43	15° 1 16'37	28.73335 AU
max. Earth dist.	2475 Oct 16 22:35	25° 2 47'39	31.16821 AU		2483 May 16 10:05	15° 1	
conjunction	2475 Oct 19 00:00	25° 2 52'33	16°34'18	direct	2483 Jul 24 03:45	13° 1 52'29	
minimum elong	2475 Oct 18 23:55	25° 2 52'33	16°34'18		2483 Sep 26 16:18	15° 1	
retrograde	2476 Jan 30 13:36	28° 2 30'50		conjunction	2483 Nov 08 19:29	16° 1 37'44	15°38'16
opposition	2476 Apr 16 01:52	27° 2 08'06	17°41'25	minimum elong	2483 Nov 08 19:41	16° 1 37'46	15°38'17
min. Earth dist.	2476 Apr 17 23:33	27° 2 04'53	29.20524 AU	max. Earth dist.	2483 Nov 07 15:43	16° 1 34'56	30.63915 AU
direct	2476 Jul 04 18:19	25° 2 42'15		retrograde	2484 Feb 20 13:08	19° 1 18'36	
max. Earth dist.	2476 Oct 18 20:41	28° 2 21'02	31.06661 AU	opposition	2484 May 07 06:58	17° 1 55'14	16°35'00
conjunction	2476 Oct 20 19:35	28° 2 25'42	16°33'49	min. Earth dist.	2484 May 08 07:38	17° 1 53'30	28.70656 AU
minimum elong	2476 Oct 20 19:34	28° 2 25'42	16°33'49	direct	2484 Jul 26 01:37	16° 1 29'10	
	2476 Dec 01 20:12	0° 1		conjunction	2484 Nov 10 15:54	19° 1 14'12	15°22'53
retrograde	2477 Feb 01 10:55	1° 1 04'41		minimum elong	2484 Nov 10 16:11	19° 1 14'14	15°22'53
	2477 Apr 08 02:18	30° 1		max. Earth dist.	2484 Nov 09 16:35	19° 1 11'51	30.62055 AU
opposition	2477 Apr 18 22:11	29° 2 41'49	17°40'10	retrograde	2485 Feb 22 08:13	21° 1 54'54	
min. Earth dist.	2477 Apr 20 16:30	29° 2 38'50	29.10855 AU	opposition	2485 May 10 05:17	20° 1 31'33	16°17'41
direct	2477 Jul 07 14:59	28° 2 15'52		min. Earth dist.	2485 May 11 03:27	20° 1 29'59	28.69113 AU
	2477 Sep 28 02:05	0° 1		direct	2485 Jul 28 23:50	19° 1 05'34	
max. Earth dist.	2477 Oct 21 19:21	0° 1 55'31	30.97520 AU	conjunction	2485 Nov 13 11:56	21° 1 50'15	15°05'42
conjunction	2477 Oct 23 15:42	0° 1 59'57	16°31'29	minimum elong	2485 Nov 13 12:12	21° 1 50'16	15°05'42
minimum elong	2477 Oct 23 15:42	0° 1 59'57	16°31'29	max. Earth dist.	2485 Nov 12 15:06	21° 1 48'08	30.61400 AU
retrograde	2478 Feb 04 07:21	3° 1 39'31		retrograde	2486 Feb 25 04:12	24° 1 30'42	
opposition	2478 Apr 21 19:10	2° 1 16'32	17°36'55	opposition	2486 May 13 03:20	23° 1 07'24	15°58'24
min. Earth dist.	2478 Apr 23 12:10	2° 1 13'39	29.02171 AU	min. Earth dist.	2486 May 13 21:20	23° 1 06'08	28.68785 AU
direct	2478 Jul 10 11:07	0° 1 50'31		direct	2486 Jul 31 22:20	21° 1 41'31	
max. Earth dist.	2478 Oct 24 18:49	3° 1 30'58	30.89401 AU	conjunction	2486 Nov 16 07:52	24° 1 25'47	14°46'44
conjunction	2478 Oct 26 12:06	3° 1 35'07	16°27'18	minimum elong	2486 Nov 16 08:11	24° 1 25'49	14°46'44
minimum elong	2478 Oct 26 12:10	3° 1 35'07	16°27'18	max. Earth dist.	2486 Nov 15 15:27	24° 1 24'08	30.61995 AU
retrograde	2479 Feb 07 05:01	6° 1 15'10		retrograde	2487 Feb 27 22:06	27° 1 05'56	
opposition	2479 Apr 24 16:33	4° 1 52'06	17°31'39	opposition	2487 May 16 01:28	25° 1 42'42	15°37'13
min. Earth dist.	2479 Apr 26 06:16	4° 1 49'26	28.94454 AU	min. Earth dist.	2487 May 16 16:57	25° 1 41'37	28.69695 AU
direct	2479 Jul 13 10:14	3° 1 26'02		direct	2487 Aug 03 20:11	24° 1 17'00	
max. Earth dist.	2479 Oct 27 17:26	6° 1 07'04	30.82268 AU	conjunction	2487 Nov 19 03:13	27° 1 00'44	14°26'03
conjunction	2479 Oct 29 08:34	6° 1 11'00	16°21'14	minimum elong	2487 Nov 19 03:32	27° 1 00'46	14°26'04
minimum elong	2479 Oct 29 08:38	6° 1 11'01	16°21'13	max. Earth dist.	2487 Nov 18 13:39	26° 1 59'22	30.63863 AU
retrograde	2480 Feb 10 01:51	8° 1 51'28		retrograde	2488 Mar 01 18:28	29° 1 40'29	
opposition	2480 Apr 26 14:22	7° 1 28'17	17°24'21	opposition	2488 May 17 23:10	28° 1 17'23	15°14'13
min. Earth dist.	2480 Apr 28 02:25	7° 1 25'45	28.87704 AU	min. Earth dist.	2488 May 18 10:15	28° 1 16'36	28.71836 AU
direct	2480 Jul 15 06:52	6° 1 02'11		direct	2488 Aug 05 17:45	26° 1 51'54	

conjunction	2488 Nov 20 22:26	29° ℳ 35'01	14°03'44	conjunction	2496 Dec 10 13:43	19° ♄ 29'27	10°17'28
minimum elong	2488 Nov 20 22:49	29° ℳ 35'04	14°03'44	minimum elong	2496 Dec 10 14:06	19° ♄ 29'30	10°17'27
max. Earth dist.	2488 Nov 20 12:43	29° ℳ 34'03	30.66947 AU	max. Earth dist.	2496 Dec 11 03:34	19° ♄ 30'48	31.29634 AU
	2488 Dec 01 07:46	0° ♄		retrograde	2497 Mar 24 02:20	22° ♄ 02'04	
retrograde	2489 Mar 04 12:12	2° ♄ 14'18		opposition	2497 Jun 10 09:25	20° ♄ 40'43	10°42'03
opposition	2489 May 20 20:38	0° ♄ 51'21	14°49'30	min. Earth dist.	2497 Jun 09 17:44	20° ♄ 41'46	29.38798 AU
min. Earth dist.	2489 May 21 05:35	0° ♄ 50'43	28.75162 AU	direct	2497 Aug 29 14:46	19° ♄ 17'47	
	2489 Jun 22 19:09	30° ℞					
direct	2489 Aug 08 15:01	29° ℳ 26'07		conjunction	2497 Dec 13 03:45	21° ♄ 51'41	9°44'40
	2489 Sep 22 20:27	0° ♄		minimum elong	2497 Dec 13 04:07	21° ♄ 51'43	9°44'41
				max. Earth dist.	2497 Dec 13 21:36	21° ♄ 53'24	31.41825 AU
conjunction	2489 Nov 23 17:14	2° ♄ 08'33	13°39'51	retrograde	2498 Mar 26 13:22	24° ♄ 23'13	
minimum elong	2489 Nov 23 17:36	2° ♄ 08'35	13°39'52	min. Earth dist.	2498 Jun 12 08:42	23° ♄ 03'17	29.51145 AU
max. Earth dist.	2489 Nov 23 10:40	2° ♄ 07'53	30.71215 AU	opposition	2498 Jun 13 02:30	23° ♄ 02'05	10°06'30
retrograde	2490 Mar 07 07:22	4° ♄ 47'15		direct	2498 Sep 01 08:36	21° ♄ 39'29	
opposition	2490 May 23 17:51	3° ♄ 24'29	14°23'08				
min. Earth dist.	2490 May 23 22:48	3° ♄ 24'08	28.79616 AU	conjunction	2498 Dec 15 16:49	24° ♄ 12'05	9°11'10
direct	2490 Aug 11 14:12	1° ♄ 59'31		minimum elong	2498 Dec 15 17:10	24° ♄ 12'07	9°11'10
				max. Earth dist.	2498 Dec 16 13:02	24° ♄ 14'01	31.55046 AU
conjunction	2490 Nov 26 11:30	4° ♄ 41'10	13°14'32	retrograde	2499 Mar 29 02:15	26° ♄ 42'31	
minimum elong	2490 Nov 26 11:53	4° ♄ 41'12	13°14'31	opposition	2499 Jun 15 18:40	25° ♄ 21'39	9°30'15
max. Earth dist.	2490 Nov 26 08:07	4° ♄ 40'49	30.76583 AU	min. Earth dist.	2499 Jun 14 20:40	25° ♄ 23'07	29.64534 AU
retrograde	2491 Mar 10 01:29	7° ♄ 19'14		direct	2499 Sep 04 01:34	23° ♄ 59'24	
opposition	2491 May 26 14:51	5° ♄ 56'39	13°55'15				
min. Earth dist.	2491 May 26 17:27	5° ♄ 56'28	28.85152 AU	conjunction	2499 Dec 18 05:21	26° ♄ 30'41	8°37'04
direct	2491 Aug 14 10:19	4° ♄ 31'58		minimum elong	2499 Dec 18 05:42	26° ♄ 30'43	8°37'05
				max. Earth dist.	2499 Dec 19 05:06	26° ♄ 32'57	31.69285 AU
conjunction	2491 Nov 29 05:25	7° ♄ 12'44	12°47'50	retrograde	2500 Mar 31 13:16	29° ♄ 00'01	
minimum elong	2491 Nov 29 05:48	7° ♄ 12'46	12°47'51	min. Earth dist.	2500 Jun 17 10:01	27° ♄ 41'03	29.78955 AU
max. Earth dist.	2491 Nov 29 05:30	7° ♄ 12'44	30.83019 AU	opposition	2500 Jun 18 10:06	27° ♄ 39'27	8°53'25
retrograde	2492 Mar 11 19:24	9° ♄ 50'04		direct	2500 Sep 06 16:12	26° ♄ 17'36	
opposition	2492 May 28 11:12	8° ♄ 27'41	13°25'57				
min. Earth dist.	2492 May 28 10:23	8° ♄ 27'45	28.91703 AU	conjunction	2500 Dec 20 17:10	28° ♄ 47'34	8°02'27
direct	2492 Aug 16 09:02	7° ♄ 03'18		minimum elong	2500 Dec 20 17:29	28° ♄ 47'36	8°02'27
				max. Earth dist.	2500 Dec 21 19:40	28° ♄ 50'04	31.84525 AU
conjunction	2492 Nov 30 22:45	9° ♄ 43'05	12°19'54		2501 Jan 23 03:13	0° ♄	
minimum elong	2492 Nov 30 23:09	9° ♄ 43'08	12°19'53	retrograde	2501 Apr 03 00:36	1° ♄ 15'47	
max. Earth dist.	2492 Dec 01 01:05	9° ♄ 43'19	30.90447 AU		2501 Jun 18 05:10	30° ℞	
retrograde	2493 Mar 14 14:05	12° ♄ 19'37		min. Earth dist.	2501 Jun 19 21:05	29° ♄ 57'22	29.94343 AU
opposition	2493 May 31 07:15	10° ♄ 57'26	12°55'21	opposition	2501 Jun 21 00:49	29° ♄ 55'32	8°16'06
min. Earth dist.	2493 May 31 03:42	10° ♄ 57'41	28.99239 AU	direct	2501 Sep 09 08:48	28° ♄ 34'06	
direct	2493 Aug 19 06:00	9° ♄ 33'20			2501 Nov 24 07:36	0° ♄	
conjunction	2493 Dec 03 15:34	12° ♄ 12'05	11°50'47	conjunction	2501 Dec 23 04:06	1° ♄ 02'46	7°27'26
minimum elong	2493 Dec 03 15:57	12° ♄ 12'08	11°50'48	minimum elong	2501 Dec 23 04:24	1° ♄ 02'48	7°27'27
max. Earth dist.	2493 Dec 03 21:35	12° ♄ 12'41	30.98840 AU	max. Earth dist.	2501 Dec 24 09:14	1° ♄ 05'30	32.00675 AU
retrograde	2494 Mar 17 05:09	14° ♄ 47'44		retrograde	2502 Apr 05 12:28	3° ♄ 29'52	
opposition	2494 Jun 03 02:46	13° ♄ 25'46	12°23'34	min. Earth dist.	2502 Jun 22 08:48	2° ♄ 11'56	30.10648 AU
min. Earth dist.	2494 Jun 02 20:33	13° ♄ 26'11	29.07705 AU	opposition	2502 Jun 23 15:00	2° ♄ 09'58	7°38'25
direct	2494 Aug 22 03:42	12° ♄ 01'57		direct	2502 Sep 11 21:54	0° ♄ 48'58	
conjunction	2494 Dec 06 07:39	14° ♄ 39'34	11°20'37	conjunction	2502 Dec 25 14:31	3° ♄ 16'19	6°52'07
minimum elong	2494 Dec 06 08:02	14° ♄ 39'37	11°20'37	minimum elong	2502 Dec 25 14:48	3° ♄ 16'20	6°52'06
max. Earth dist.	2494 Dec 06 15:33	14° ♄ 40'21	31.08165 AU	max. Earth dist.	2502 Dec 26 22:46	3° ♄ 19'18	32.17685 AU
retrograde	2495 Mar 19 21:55	17° ♄ 14'16		retrograde	2503 Apr 07 22:03	5° ♄ 42'17	
opposition	2495 Jun 05 21:42	15° ♄ 52'29	11°50'41	min. Earth dist.	2503 Jun 24 19:39	4° ♄ 24'52	30.27773 AU
min. Earth dist.	2495 Jun 05 12:07	15° ♄ 53'09	29.17120 AU	opposition	2503 Jun 26 04:22	4° ♄ 22'44	7°00'28
direct	2495 Aug 24 23:22	14° ♄ 28'58		direct	2503 Sep 14 12:42	3° ♄ 02'11	
conjunction	2495 Dec 08 23:06	17° ♄ 05'24	10°49'29	conjunction	2503 Dec 28 00:05	5° ♄ 28'12	6°16'34
minimum elong	2495 Dec 08 23:29	17° ♄ 05'26	10°49'30	minimum elong	2503 Dec 28 00:20	5° ♄ 28'13	6°16'34
max. Earth dist.	2495 Dec 09 11:01	17° ♄ 06'34	31.18426 AU	max. Earth dist.	2503 Dec 29 09:55	5° ♄ 31'19	32.35452 AU
retrograde	2496 Mar 21 11:48	19° ♄ 39'05		retrograde	2504 Apr 09 09:29	7° ♄ 53'02	
opposition	2496 Jun 07 16:00	18° ♄ 17'30	11°16'49	min. Earth dist.	2504 Jun 26 05:36	6° ♄ 36'08	30.45652 AU
min. Earth dist.	2496 Jun 07 04:17	18° ♄ 18'18	29.27469 AU	opposition	2504 Jun 27 17:03	6° ♄ 33'50	6°22'21
direct	2496 Aug 26 20:03	16° ♄ 54'16		direct	2504 Sep 16 01:53	5° ♄ 13'44	

conjunction	2504 Dec 29 09:11	7°☾38'25	5°40'54	retrograde	2513 Apr 27 12:29	26°☾10'24	
minimum elong	2504 Dec 29 09:25	7°☾38'26	5°40'53	min. Earth dist.	2513 Jul 14 19:58	24°☾57'26	32.32858 AU
max. Earth dist.	2504 Dec 30 22:12	7°☾41'48	32.53901 AU	opposition	2513 Jul 17 02:12	24°☾54'06	0°44'37
retrograde	2505 Apr 11 17:58	10°☾02'06		direct	2513 Oct 05 18:24	23°☾37'35	
min. Earth dist.	2505 Jun 28 16:05	8°☾45'38	30.64185 AU				
opposition	2505 Jun 30 05:01	8°☾43'15	5°44'10	conjunction	2514 Jan 16 10:14	25°☾50'20	0°25'08
direct	2505 Sep 18 16:26	7°☾23'35		minimum elong	2514 Jan 16 10:15	25°☾50'20	0°25'09
				max. Earth dist.	2514 Jan 18 16:55	25°☾54'59	34.44717 AU
conjunction	2505 Dec 31 17:29	9°☾46'56	5°05'10	retrograde	2514 Apr 29 14:57	28°☾03'38	
minimum elong	2505 Dec 31 17:41	9°☾46'57	5°05'11	min. Earth dist.	2514 Jul 17 00:39	26°☾51'04	32.56445 AU
max. Earth dist.	2506 Jan 02 07:32	9°☾50'24	32.72958 AU	opposition	2514 Jul 19 07:47	26°☾47'41	0°08'47
retrograde	2506 Apr 14 02:53	12°☾09'28		direct	2514 Oct 08 01:45	25°☾31'36	
min. Earth dist.	2506 Jul 01 00:15	10°☾53'32	30.83327 AU	desc. node	2514 Oct 18 01:02	25°☾33'05	
opposition	2506 Jul 02 16:18	10°☾50'58	5°06'00				
direct	2506 Sep 21 04:09	9°☾31'42		conjunction	2515 Jan 18 12:13	27°☾43'08	0°-8'-26
				minimum elong	2515 Jan 18 12:13	27°☾43'08	0°08'28
conjunction	2507 Jan 03 01:07	11°☾53'43	4°29'28	behind sun begin	2515 Jan 18 06:36	27°☾42'41	
minimum elong	2507 Jan 03 01:18	11°☾53'43	4°29'28	behind sun end	2515 Jan 18 17:49	27°☾43'35	
max. Earth dist.	2507 Jan 04 18:06	11°☾57'24	32.92563 AU	max. Earth dist.	2515 Jan 20 19:37	27°☾47'48	34.68539 AU
retrograde	2507 Apr 16 07:52	14°☾15'04		retrograde	2515 May 01 17:33	29°☾55'22	
min. Earth dist.	2507 Jul 03 09:57	12°☾59'30	31.03016 AU	min. Earth dist.	2515 Jul 19 02:44	28°☾43'17	32.80460 AU
opposition	2507 Jul 05 02:58	12°☾56'53	4°27'54	opposition	2515 Jul 21 12:33	28°☾39'46	0°-26'-32
direct	2507 Sep 23 16:41	11°☾38'02		direct	2515 Oct 10 07:04	27°☾24'06	
conjunction	2508 Jan 05 08:04	13°☾58'41	3°53'51	conjunction	2516 Jan 20 13:49	29°☾34'26	0°-41'-27
minimum elong	2508 Jan 05 08:13	13°☾58'42	3°53'52	minimum elong	2516 Jan 20 13:48	29°☾34'26	0°41'27
max. Earth dist.	2508 Jan 07 02:03	14°☾02'26	33.12686 AU	max. Earth dist.	2516 Jan 22 23:22	29°☾39'16	34.92715 AU
retrograde	2508 Apr 17 14:08	16°☾18'51			2516 Feb 02 08:21	0°≈	
min. Earth dist.	2508 Jul 04 16:37	15°☾03'46	31.23230 AU	retrograde	2516 May 02 17:00	1°≈45'38	
opposition	2508 Jul 06 12:29	15°☾00'59	3°49'58	min. Earth dist.	2516 Jul 20 06:30	0°≈33'55	33.04818 AU
direct	2508 Sep 25 03:43	13°☾42'31		opposition	2516 Jul 22 16:41	0°≈30'23	-1°-1'-20
					2516 Aug 13 05:30	30°☾☾	
conjunction	2509 Jan 06 14:14	16°☾01'48	3°18'23	direct	2516 Oct 11 12:24	29°☾15'09	
minimum elong	2509 Jan 06 14:22	16°☾01'48	3°18'23		2516 Dec 06 15:12	0°≈	
max. Earth dist.	2509 Jan 08 10:36	16°☾05'44	33.33305 AU				
retrograde	2509 Apr 19 18:38	18°☾20'47		conjunction	2517 Jan 21 14:52	1°≈24'18	-1°-14'00
min. Earth dist.	2509 Jul 07 00:31	17°☾06'03	31.43989 AU	minimum elong	2517 Jan 21 14:50	1°≈24'18	1°14'01
opposition	2509 Jul 08 21:35	17°☾03'13	3°12'15	max. Earth dist.	2517 Jan 24 01:16	1°≈29'10	35.17182 AU
direct	2509 Sep 27 12:41	15°☾45'07		retrograde	2517 May 04 16:55	3°≈34'28	
				min. Earth dist.	2517 Jul 22 08:11	2°≈23'11	33.29431 AU
conjunction	2510 Jan 08 19:33	18°☾03'02	2°43'08	opposition	2517 Jul 24 20:13	2°≈19'35	-1°-35'-33
minimum elong	2510 Jan 08 19:40	18°☾03'02	2°43'08	direct	2517 Oct 13 17:02	1°≈04'44	
max. Earth dist.	2510 Jan 10 17:56	18°☾07'07	33.54464 AU				
retrograde	2510 Apr 21 22:42	20°☾20'51		conjunction	2518 Jan 23 15:13	3°≈12'45	-1°-46'-2
min. Earth dist.	2510 Jul 09 06:07	19°☾06'34	31.65312 AU	minimum elong	2518 Jan 23 15:09	3°≈12'44	1°46'02
opposition	2510 Jul 11 05:50	19°☾03'35	2°34'48	max. Earth dist.	2518 Jan 26 02:42	3°≈17'39	35.41839 AU
direct	2510 Sep 29 22:22	17°☾45'52		retrograde	2518 May 06 17:59	5°≈21'54	
				min. Earth dist.	2518 Jul 24 10:25	4°≈10'59	33.54240 AU
conjunction	2511 Jan 11 00:10	20°☾02'26	2°08'08	opposition	2518 Jul 26 23:21	4°≈07'21	-2°-9'-11
minimum elong	2511 Jan 11 00:15	20°☾02'26	2°08'07	direct	2518 Oct 15 18:47	2°≈52'54	
max. Earth dist.	2511 Jan 13 00:18	20°☾06'38	33.76178 AU				
retrograde	2511 Apr 24 04:27	22°☾19'05		conjunction	2519 Jan 25 15:17	4°≈59'46	-2°-17'-31
min. Earth dist.	2511 Jul 11 11:31	21°☾05'13	31.87250 AU	minimum elong	2519 Jan 25 15:12	4°≈59'45	2°17'32
opposition	2511 Jul 13 13:21	21°☾02'07	1°57'41	max. Earth dist.	2519 Jan 28 04:14	5°≈04'46	35.66643 AU
direct	2511 Oct 02 03:56	19°☾44'47		retrograde	2519 May 08 17:28	7°≈07'55	
				min. Earth dist.	2519 Jul 26 11:58	5°≈57'21	33.79162 AU
conjunction	2512 Jan 13 04:13	22°☾00'04	1°33'26	opposition	2519 Jul 29 01:37	5°≈53'41	-2°-42'-11
minimum elong	2512 Jan 13 04:16	22°☾00'04	1°33'26	direct	2519 Oct 17 22:17	4°≈39'36	
max. Earth dist.	2512 Jan 15 07:00	22°☾04'27	33.98485 AU				
retrograde	2512 Apr 25 07:17	24°☾15'35		conjunction	2520 Jan 27 14:38	6°≈45'21	-2°-48'-26
min. Earth dist.	2512 Jul 12 16:37	23°☾02'07	32.09770 AU	minimum elong	2520 Jan 27 14:32	6°≈45'20	2°48'27
opposition	2512 Jul 14 20:08	22°☾58'56	1°20'56	max. Earth dist.	2520 Jan 30 03:28	6°≈50'18	35.91527 AU
direct	2512 Oct 03 12:08	21°☾42'00		retrograde	2520 May 09 19:09	8°≈52'29	
				min. Earth dist.	2520 Jul 27 12:12	7°≈42'17	34.04183 AU
conjunction	2513 Jan 14 07:27	23°☾56'00	0°59'05	opposition	2520 Jul 30 03:22	7°≈38'33	-3°-14'-34
minimum elong	2513 Jan 14 07:29	23°☾56'00	0°59'04	direct	2520 Oct 18 22:46	6°≈24'50	
max. Earth dist.	2513 Jan 16 11:12	24°☾00'26	34.21343 AU				

conjunction	2521 Jan 28 13:28	8°29'28	-3°-18'-47	direct	2528 Nov 01 18:12	19°37'55	
minimum elong	2521 Jan 28 13:21	8°29'28	3°18'49				
max. Earth dist.	2521 Jan 31 04:12	8°34'32	36.16487 AU	conjunction	2529 Feb 10 08:47	21°34'36	-6°-59'-14
retrograde	2521 May 11 17:12	10°35'37		minimum elong	2529 Feb 10 08:35	21°34'35	6°59'15
min. Earth dist.	2521 Jul 29 13:25	9°25'41	34.29293 AU	max. Earth dist.	2529 Feb 13 05:59	21°39'53	38.21401 AU
opposition	2521 Aug 01 04:32	9°21'58	-3°-46'-18	retrograde	2529 May 24 11:57	23°33'40	
direct	2521 Oct 21 00:52	8°08'36		min. Earth dist.	2529 Aug 11 17:46	22°26'27	36.35932 AU
				opposition	2529 Aug 14 17:02	22°22'25	-7°-35'-28
conjunction	2522 Jan 30 11:38	10°12'08	-3°-48'-33	direct	2529 Nov 03 16:23	21°11'50	
minimum elong	2522 Jan 30 11:30	10°12'07	3°48'34				
max. Earth dist.	2522 Feb 02 02:24	10°17'09	36.41554 AU	conjunction	2530 Feb 12 03:18	23°07'39	-7°-23'-54
retrograde	2522 May 13 14:53	12°17'18		minimum elong	2530 Feb 12 03:06	23°07'39	7°23'56
min. Earth dist.	2522 Jul 31 11:46	11°07'45	34.54551 AU	max. Earth dist.	2530 Feb 15 01:31	23°12'58	38.47310 AU
opposition	2522 Aug 03 05:01	11°03'56	-4°-17'-22	retrograde	2530 May 26 05:43	25°05'56	
direct	2522 Oct 23 02:49	9°50'53		min. Earth dist.	2530 Aug 13 14:47	23°58'57	36.61992 AU
				opposition	2530 Aug 16 13:32	23°54'58	-8°00'-59
conjunction	2523 Feb 01 09:13	11°53'21	-4°-17'-41	direct	2530 Nov 05 13:49	22°44'43	
minimum elong	2523 Feb 01 09:05	11°53'20	4°17'43				
max. Earth dist.	2523 Feb 04 01:54	11°58'30	36.66764 AU	conjunction	2531 Feb 13 21:28	24°39'39	-7°-47'-58
retrograde	2523 May 15 10:41	13°57'34		minimum elong	2531 Feb 13 21:16	24°39'38	7°47'58
min. Earth dist.	2523 Aug 02 11:35	12°48'18	34.79994 AU	max. Earth dist.	2531 Feb 16 19:48	24°44'57	38.73100 AU
opposition	2523 Aug 05 05:01	12°44'29	-4°-47'-46	retrograde	2531 May 27 22:02	26°37'08	
direct	2523 Oct 25 04:41	11°31'47		min. Earth dist.	2531 Aug 15 10:03	25°30'27	36.87887 AU
				opposition	2531 Aug 18 09:25	25°26'27	-8°-25'-50
conjunction	2524 Feb 03 06:23	13°33'12	-4°-46'-13	direct	2531 Nov 07 11:32	24°16'30	
minimum elong	2524 Feb 03 06:15	13°33'12	4°46'13				
max. Earth dist.	2524 Feb 05 23:43	13°38'22	36.92169 AU	conjunction	2532 Feb 15 15:12	26°10'34	-8°-11'-23
	2524 Mar 25 04:22	15°		minimum elong	2532 Feb 15 15:00	26°10'33	8°11'24
retrograde	2524 May 16 06:13	15°36'30		max. Earth dist.	2532 Feb 18 13:07	26°15'48	38.98698 AU
	2524 Jul 09 20:49	15°		retrograde	2532 May 28 16:15	28°07'16	
min. Earth dist.	2524 Aug 03 08:58	14°27'36	35.05634 AU	min. Earth dist.	2532 Aug 16 05:23	27°00'48	37.13602 AU
opposition	2524 Aug 06 04:06	14°23'42	-5°-17'-28	opposition	2532 Aug 19 04:50	26°56'49	-8°-50'00
direct	2524 Oct 26 05:24	13°11'21		direct	2532 Nov 08 06:26	25°47'10	
	2525 Jan 28 20:36	15°					
conjunction	2525 Feb 04 02:58	15°11'46	-5°-14'-6	conjunction	2533 Feb 16 08:38	27°40'22	-8°-34'-12
minimum elong	2525 Feb 04 02:49	15°11'45	5°14'07	minimum elong	2533 Feb 16 08:25	27°40'21	8°34'13
max. Earth dist.	2525 Feb 06 21:11	15°16'58	37.17760 AU	max. Earth dist.	2533 Feb 19 07:33	27°45'38	39.24113 AU
retrograde	2525 May 18 03:21	17°14'11		retrograde	2533 May 30 09:35	29°36'17	
min. Earth dist.	2525 Aug 05 06:58	16°05'37	35.31485 AU	min. Earth dist.	2533 Aug 18 00:49	28°30'00	37.39131 AU
opposition	2525 Aug 08 02:59	16°01'41	-5°-46'-28	opposition	2533 Aug 20 23:53	28°26'04	-9°-13'-30
	2525 Sep 30 09:56	15°		direct	2533 Nov 10 01:29	27°16'40	
direct	2525 Oct 28 03:13	14°49'42					
	2525 Nov 24 04:37	15°		conjunction	2534 Feb 18 01:19	29°09'01	-8°-56'-23
conjunction	2526 Feb 05 23:04	16°49'08	-5°-41'-21	minimum elong	2534 Feb 18 01:07	29°09'00	8°56'25
minimum elong	2526 Feb 05 22:54	16°49'07	5°41'21	max. Earth dist.	2534 Feb 20 23:35	29°14'11	39.49364 AU
max. Earth dist.	2526 Feb 08 18:59	16°54'25	37.43538 AU		2534 Mar 19 22:18	0°	
retrograde	2526 May 19 23:53	18°50'41		retrograde	2534 Jun 01 04:01	1°04'09	
min. Earth dist.	2526 Aug 07 04:33	17°42'27	35.57491 AU		2534 Aug 18 08:22	30°	
opposition	2526 Aug 10 01:16	17°38'30	-6°-14'-46	min. Earth dist.	2534 Aug 19 18:09	29°58'08	37.64536 AU
direct	2526 Oct 30 01:08	16°26'52		opposition	2534 Aug 22 18:26	29°54'09	-9°-36'-21
				direct	2534 Nov 11 18:41	28°45'00	
conjunction	2527 Feb 07 18:41	18°25'22	-6°-7'-57		2535 Jan 29 14:06	0°	
minimum elong	2527 Feb 07 18:30	18°25'21	6°07'58	conjunction	2535 Feb 19 17:49	0°36'31	-9°-17'-57
max. Earth dist.	2527 Feb 10 14:33	18°30'36	37.69442 AU	minimum elong	2535 Feb 19 17:36	0°36'30	9°17'58
retrograde	2527 May 21 22:21	20°26'04		max. Earth dist.	2535 Feb 22 17:24	0°41'45	39.74506 AU
min. Earth dist.	2527 Aug 09 00:41	19°18'12	35.83621 AU	retrograde	2535 Jun 02 19:23	2°30'54	
opposition	2527 Aug 11 22:55	19°14'12	-6°-42'-22	min. Earth dist.	2535 Aug 21 12:53	1°25'03	37.89863 AU
direct	2527 Oct 31 20:06	18°02'55		opposition	2535 Aug 24 12:27	1°21'07	-9°-58'-31
				direct	2535 Nov 13 13:58	0°12'14	
conjunction	2528 Feb 09 14:01	20°00'31	-6°-33'-55				
minimum elong	2528 Feb 09 13:51	20°00'30	6°33'55	conjunction	2536 Feb 21 09:53	2°02'57	-9°-38'-54
max. Earth dist.	2528 Feb 12 11:35	20°05'51	37.95420 AU	minimum elong	2536 Feb 21 09:41	2°02'56	9°38'55
retrograde	2528 May 22 17:14	22°00'24		max. Earth dist.	2536 Feb 24 09:14	2°08'08	39.99603 AU
min. Earth dist.	2528 Aug 09 22:28	20°52'48	36.09788 AU	retrograde	2536 Jun 03 10:12	3°56'35	
opposition	2528 Aug 12 20:15	20°48'50	-7°-9'-16	min. Earth dist.	2536 Aug 22 05:07	2°51'02	38.15154 AU
				opposition	2536 Aug 25 05:58	2°47'02	-10°-20'00

direct	2536 Nov 14 08:49	1° ✕ 38'25		minimum elong	2545 Mar 04 19:54	14° ✕ 23'41	12°20'18
				max. Earth dist.	2545 Mar 07 20:34	14° ✕ 28'43	42.20794 AU
conjunction	2537 Feb 22 01:25	3° ✕ 28'22	-9°-59'-13	retrograde	2545 Jun 15 20:41	16° ✕ 11'45	
minimum elong	2537 Feb 22 01:12	3° ✕ 28'21	9°59'13	min. Earth dist.	2545 Sep 04 04:38	15° ✕ 08'15	40.37377 AU
max. Earth dist.	2537 Feb 25 01:26	3° ✕ 33'35	40.24665 AU	opposition	2545 Sep 07 04:17	15° ✕ 04'28	-13°-4'-49
retrograde	2537 Jun 05 01:22	5° ✕ 21'18		direct	2545 Nov 27 08:30	13° ✕ 58'20	
min. Earth dist.	2537 Aug 23 22:29	4° ✕ 15'59	38.40434 AU				
opposition	2537 Aug 26 23:19	4° ✕ 12'00	-10°-40'-50	conjunction	2546 Mar 06 09:05	15° ✕ 42'19	-12°-35'-26
direct	2537 Nov 16 02:36	3° ✕ 03'40		minimum elong	2546 Mar 06 08:53	15° ✕ 42'18	12°35'28
				max. Earth dist.	2546 Mar 09 08:11	15° ✕ 47'12	42.44053 AU
conjunction	2538 Feb 23 16:50	4° ✕ 52'53	-10°-18'-54	retrograde	2546 Jun 17 12:44	17° ✕ 29'46	
minimum elong	2538 Feb 23 16:38	4° ✕ 52'52	10°18'55	min. Earth dist.	2546 Sep 05 18:11	16° ✕ 26'28	40.60693 AU
max. Earth dist.	2538 Feb 26 17:43	4° ✕ 58'07	40.49722 AU	opposition	2546 Sep 08 18:22	16° ✕ 22'40	-13°-20'-12
retrograde	2538 Jun 06 15:24	6° ✕ 45'09		direct	2546 Nov 28 19:45	15° ✕ 16'45	
min. Earth dist.	2538 Aug 25 14:50	5° ✕ 40'05	38.65678 AU				
opposition	2538 Aug 28 16:05	5° ✕ 36'06	-11°00'-59	conjunction	2547 Mar 07 21:51	17° ✕ 00'07	-12°-50'-4
direct	2538 Nov 17 20:41	4° ✕ 28'04		minimum elong	2547 Mar 07 21:40	17° ✕ 00'06	12°50'05
				max. Earth dist.	2547 Mar 10 21:41	17° ✕ 05'01	42.67030 AU
conjunction	2539 Feb 25 07:43	6° ✕ 16'33	-10°-37'-58	retrograde	2547 Jun 19 01:44	18° ✕ 46'59	
minimum elong	2539 Feb 25 07:31	6° ✕ 16'32	10°37'59	min. Earth dist.	2547 Sep 07 09:20	17° ✕ 43'46	40.83752 AU
max. Earth dist.	2539 Feb 28 08:03	6° ✕ 21'44	40.74728 AU	opposition	2547 Sep 10 08:13	17° ✕ 40'03	-13°-35'-2
retrograde	2539 Jun 08 09:08	8° ✕ 08'11		direct	2547 Nov 30 08:59	16° ✕ 34'21	
min. Earth dist.	2539 Aug 27 06:36	7° ✕ 03'25	38.90866 AU				
opposition	2539 Aug 30 08:33	6° ✕ 59'25	-11°-20'-30	conjunction	2548 Mar 08 10:18	18° ✕ 17'06	-13°-4'-9
direct	2539 Nov 19 10:43	5° ✕ 51'40		minimum elong	2548 Mar 08 10:07	18° ✕ 17'05	13°04'10
				max. Earth dist.	2548 Mar 11 09:37	18° ✕ 21'57	42.89790 AU
conjunction	2540 Feb 26 22:31	7° ✕ 39'29	-10°-56'-27	retrograde	2548 Jun 19 11:28	20° ✕ 03'23	
minimum elong	2540 Feb 26 22:18	7° ✕ 39'28	10°56'28	min. Earth dist.	2548 Sep 07 21:49	19° ✕ 00'24	41.06606 AU
max. Earth dist.	2540 Mar 01 00:05	7° ✕ 44'43	40.99644 AU	opposition	2548 Sep 10 21:30	18° ✕ 56'39	-13°-49'-19
retrograde	2540 Jun 09 00:50	9° ✕ 30'30		direct	2548 Dec 01 00:24	17° ✕ 51'09	
min. Earth dist.	2540 Aug 27 23:31	8° ✕ 25'55	39.15925 AU				
opposition	2540 Aug 31 00:34	8° ✕ 21'59	-11°-39'-22	conjunction	2549 Mar 09 22:24	19° ✕ 33'19	-13°-17'-43
direct	2540 Nov 20 01:52	7° ✕ 14'33		minimum elong	2549 Mar 09 22:14	19° ✕ 33'19	13°17'44
				max. Earth dist.	2549 Mar 12 21:35	19° ✕ 38'08	43.12364 AU
conjunction	2541 Feb 27 12:53	9° ✕ 01'43	-11°-14'-20	retrograde	2549 Jun 20 22:11	21° ✕ 19'03	
minimum elong	2541 Feb 27 12:41	9° ✕ 01'42	11°14'20	min. Earth dist.	2549 Sep 09 11:34	20° ✕ 16'14	41.29300 AU
max. Earth dist.	2541 Mar 02 13:38	9° ✕ 06'51	41.24418 AU	opposition	2549 Sep 12 10:46	20° ✕ 12'31	-14°-3'-1
retrograde	2541 Jun 10 16:01	10° ✕ 52'06		direct	2549 Dec 02 14:54	19° ✕ 07'14	
min. Earth dist.	2541 Aug 29 14:13	9° ✕ 47'51	39.40813 AU				
opposition	2541 Sep 01 16:19	9° ✕ 43'53	-11°-57'-38	conjunction	2550 Mar 11 10:19	20° ✕ 48'50	-13°-30'-46
direct	2541 Nov 21 16:39	8° ✕ 36'44		minimum elong	2550 Mar 11 10:08	20° ✕ 48'49	13°30'46
				max. Earth dist.	2550 Mar 14 10:06	20° ✕ 53'40	43.34790 AU
conjunction	2542 Mar 01 02:58	10° ✕ 23'15	-11°-31'-38	retrograde	2550 Jun 22 08:33	22° ✕ 34'02	
minimum elong	2542 Mar 01 02:46	10° ✕ 23'14	11°31'40	min. Earth dist.	2550 Sep 11 00:40	21° ✕ 31'23	41.51815 AU
max. Earth dist.	2542 Mar 04 04:15	10° ✕ 28'24	41.48974 AU	opposition	2550 Sep 13 23:37	21° ✕ 27'41	-14°-16'-11
retrograde	2542 Jun 12 05:02	12° ✕ 13'04		direct	2550 Dec 04 05:40	20° ✕ 22'38	
min. Earth dist.	2542 Aug 31 07:00	11° ✕ 08'59	39.65457 AU				
opposition	2542 Sep 03 07:55	11° ✕ 05'05	-12°-15'-17	conjunction	2551 Mar 12 21:57	22° ✕ 03'41	-13°-43'-17
direct	2542 Nov 23 09:37	9° ✕ 58'14		minimum elong	2551 Mar 12 21:47	22° ✕ 03'40	13°43'18
				max. Earth dist.	2551 Mar 15 20:42	22° ✕ 08'25	43.57037 AU
conjunction	2543 Mar 02 17:02	11° ✕ 44'08	-11°-48'-23	retrograde	2551 Jun 23 22:15	23° ✕ 48'23	
minimum elong	2543 Mar 02 16:50	11° ✕ 44'07	11°48'24	min. Earth dist.	2551 Sep 12 12:45	22° ✕ 45'57	41.74149 AU
max. Earth dist.	2543 Mar 05 17:54	11° ✕ 49'13	41.73261 AU	opposition	2551 Sep 15 12:05	22° ✕ 42'15	-14°-28'-48
retrograde	2543 Jun 13 16:49	13° ✕ 33'20		direct	2551 Dec 05 16:43	21° ✕ 37'25	
min. Earth dist.	2543 Sep 01 21:52	12° ✕ 29'31	39.89782 AU				
opposition	2543 Sep 04 22:51	12° ✕ 25'37	-12°-32'-21	conjunction	2552 Mar 13 09:27	23° ✕ 17'56	-13°-55'-18
direct	2543 Nov 25 02:43	11° ✕ 19'02		minimum elong	2552 Mar 13 09:17	23° ✕ 17'55	13°55'18
				max. Earth dist.	2552 Mar 16 09:01	23° ✕ 22'42	43.79080 AU
conjunction	2544 Mar 03 06:42	13° ✕ 04'17	-12°-4'-36	retrograde	2552 Jun 24 11:03	25° ✕ 02'09	
minimum elong	2544 Mar 03 06:29	13° ✕ 04'17	12°04'37	min. Earth dist.	2552 Sep 13 02:22	23° ✕ 59'51	41.96247 AU
max. Earth dist.	2544 Mar 06 06:38	13° ✕ 09'17	41.97202 AU	opposition	2552 Sep 16 00:28	23° ✕ 56'13	-14°-40'-55
retrograde	2544 Jun 14 07:20	14° ✕ 52'56		direct	2552 Dec 06 03:57	22° ✕ 51'37	
min. Earth dist.	2544 Sep 02 13:14	13° ✕ 49'17	40.13762 AU				
opposition	2544 Sep 05 13:46	13° ✕ 45'26	-12°-48'-52	conjunction	2553 Mar 14 20:34	24° ✕ 31'38	-14°-6'-49
direct	2544 Nov 25 17:17	12° ✕ 39'05		minimum elong	2553 Mar 14 20:26	24° ✕ 31'38	14°06'51
				max. Earth dist.	2553 Mar 17 19:07	24° ✕ 36'19	44.00879 AU
conjunction	2545 Mar 04 20:04	14° ✕ 23'42	-12°-20'-17	retrograde	2553 Jun 25 23:46	26° ✕ 15'22	

min. Earth dist.	2553 Sep 14 13:55	25° Υ 13'17	42.18064 AU	min. Earth dist.	2561 Sep 24 11:33	4° Υ 40'40	43.78351 AU
opposition	2553 Sep 17 12:32	25° Υ 09'40	-14°-52'-30	opposition	2561 Sep 27 04:23	4° Υ 37'25	-16°-8'-49
direct	2553 Dec 07 14:07	24° Υ 05'17		direct	2561 Dec 17 10:05	3° Υ 34'30	
conjunction	2554 Mar 16 07:39	25° Υ 44'49	-14°-17'-52	conjunction	2562 Mar 25 17:06	5° Υ 10'20	-15°-30'-40
minimum elong	2554 Mar 16 07:30	25° Υ 44'48	14°17'53	minimum elong	2562 Mar 25 17:02	5° Υ 10'20	15°30'41
max. Earth dist.	2554 Mar 19 05:55	25° Υ 49'27	44.22362 AU	max. Earth dist.	2562 Mar 28 11:16	5° Υ 14'33	45.80029 AU
retrograde	2554 Jun 27 09:57	27° Υ 28'05		retrograde	2562 Jul 06 15:57	6° Υ 50'04	
min. Earth dist.	2554 Sep 16 03:18	26° Υ 26'08	42.39545 AU	min. Earth dist.	2562 Sep 25 22:15	5° Υ 49'07	43.96929 AU
opposition	2554 Sep 19 00:26	26° Υ 22'35	-15°-3'-37	opposition	2562 Sep 28 14:12	5° Υ 45'54	-16°-16'-21
direct	2554 Dec 09 02:38	25° Υ 18'26		direct	2562 Dec 18 21:06	4° Υ 43'10	
conjunction	2555 Mar 17 18:42	26° Υ 57'29	-14°-28'-28	conjunction	2563 Mar 27 02:18	6° Υ 18'36	-15°-37'-50
minimum elong	2555 Mar 17 18:34	26° Υ 57'28	14°28'30	minimum elong	2563 Mar 27 02:12	6° Υ 18'35	15°37'51
max. Earth dist.	2555 Mar 20 16:44	27° Υ 02'05	44.43481 AU	max. Earth dist.	2563 Mar 29 19:00	6° Υ 22'42	45.98378 AU
retrograde	2555 Jun 28 18:13	28° Υ 40'17		retrograde	2563 Jul 08 04:36	7° Υ 57'57	
min. Earth dist.	2555 Sep 17 15:21	27° Υ 38'30	42.60603 AU	min. Earth dist.	2563 Sep 27 07:25	6° Υ 57'11	44.15270 AU
opposition	2555 Sep 20 11:59	27° Υ 34'59	-15°-14'-16	opposition	2563 Sep 29 23:50	6° Υ 53'57	-16°-23'-26
direct	2555 Dec 10 16:53	26° Υ 31'03		direct	2563 Dec 20 03:43	5° Υ 51'24	
conjunction	2556 Mar 18 05:23	28° Υ 09'37	-14°-38'-38	conjunction	2564 Mar 27 11:18	7° Υ 26'27	-15°-44'-36
minimum elong	2556 Mar 18 05:15	28° Υ 09'37	14°38'38	minimum elong	2564 Mar 27 11:14	7° Υ 26'27	15°44'37
max. Earth dist.	2556 Mar 21 01:39	28° Υ 14'05	44.64156 AU	max. Earth dist.	2564 Mar 30 04:14	7° Υ 30'33	46.16469 AU
retrograde	2556 Jun 29 06:18	29° Υ 51'58		retrograde	2564 Jul 08 14:02	9° Υ 05'25	
min. Earth dist.	2556 Sep 18 03:13	28° Υ 50'20	42.81214 AU	min. Earth dist.	2564 Sep 27 18:33	8° Υ 04'45	44.33339 AU
opposition	2556 Sep 20 23:21	28° Υ 46'52	-15°-24'-27	opposition	2564 Sep 30 09:21	8° Υ 01'37	-16°-30'-6
direct	2556 Dec 11 03:47	27° Υ 43'07		direct	2564 Dec 20 11:56	6° Υ 59'15	
conjunction	2557 Mar 19 16:03	29° Υ 21'12	-14°-48'-22	conjunction	2565 Mar 28 20:14	8° Υ 33'55	-15°-50'-57
minimum elong	2557 Mar 19 15:55	29° Υ 21'12	14°48'23	minimum elong	2565 Mar 28 20:10	8° Υ 33'55	15°50'58
max. Earth dist.	2557 Mar 22 12:31	29° Υ 25'40	44.84380 AU	max. Earth dist.	2565 Mar 31 12:38	8° Υ 37'58	46.34293 AU
	2557 Apr 14 03:29	0° Υ		retrograde	2565 Jul 09 20:38	10° Υ 12'32	
retrograde	2557 Jun 30 17:01	1° Υ 03'06		min. Earth dist.	2565 Sep 29 03:38	9° Υ 12'02	44.51100 AU
min. Earth dist.	2557 Sep 19 16:05	0° Υ 01'33	43.01359 AU	opposition	2565 Oct 01 18:36	9° Υ 08'54	-16°-36'-21
	2557 Sep 20 22:28	30° Υ		direct	2565 Dec 21 22:19	8° Υ 06'42	
opposition	2557 Sep 22 10:32	29° Υ 58'10	-15°-34'-13				
direct	2557 Dec 12 15:30	28° Υ 54'36		conjunction	2566 Mar 30 04:54	9° Υ 41'02	-15°-56'-55
	2558 Feb 27 23:57	0° Υ		minimum elong	2566 Mar 30 04:51	9° Υ 41'02	15°56'56
				max. Earth dist.	2566 Apr 01 20:06	9° Υ 45'00	46.51777 AU
conjunction	2558 Mar 21 02:15	0° Υ 32'12	-14°-57'-41	retrograde	2566 Jul 11 04:24	11° Υ 19'17	
minimum elong	2558 Mar 21 02:09	0° Υ 32'12	14°57'41	min. Earth dist.	2566 Sep 30 14:00	10° Υ 18'54	44.68501 AU
max. Earth dist.	2558 Mar 23 21:11	0° Υ 36'32	45.04170 AU	opposition	2566 Oct 03 03:48	10° Υ 15'50	-16°-42'-12
retrograde	2558 Jul 02 04:24	2° Υ 13'38		direct	2566 Dec 23 08:29	9° Υ 13'49	
min. Earth dist.	2558 Sep 21 02:37	1° Υ 12'14	43.21088 AU				
opposition	2558 Sep 23 21:22	1° Υ 08'51	-15°-43'-32	conjunction	2567 Mar 31 13:45	10° Υ 47'47	-16°-2'-30
direct	2558 Dec 14 00:31	0° Υ 05'26		minimum elong	2567 Mar 31 13:42	10° Υ 47'47	16°02'30
				max. Earth dist.	2567 Apr 03 04:57	10° Υ 51'44	46.68870 AU
conjunction	2559 Mar 22 12:20	1° Υ 42'36	-15°-6'-34	retrograde	2567 Jul 12 11:37	12° Υ 25'42	
minimum elong	2559 Mar 22 12:12	1° Υ 42'35	15°06'36	min. Earth dist.	2567 Oct 02 00:08	11° Υ 25'24	44.85458 AU
max. Earth dist.	2559 Mar 25 07:06	1° Υ 46'54	45.23564 AU	opposition	2567 Oct 04 12:36	11° Υ 22'24	-16°-47'-41
retrograde	2559 Jul 03 13:55	3° Υ 23'34		direct	2567 Dec 24 19:30	10° Υ 20'33	
min. Earth dist.	2559 Sep 22 14:45	2° Υ 22'13	43.40460 AU				
opposition	2559 Sep 25 07:54	2° Υ 18'56	-15°-52'-25	conjunction	2568 Mar 31 22:19	11° Υ 54'09	-16°-7'-44
direct	2559 Dec 15 10:59	1° Υ 15'41		minimum elong	2568 Mar 31 22:16	11° Υ 54'09	16°07'46
				max. Earth dist.	2568 Apr 03 11:31	11° Υ 57'58	46.85508 AU
conjunction	2560 Mar 22 22:13	2° Υ 52'23	-15°-15'-2	retrograde	2568 Jul 12 22:19	13° Υ 31'43	
minimum elong	2560 Mar 22 22:07	2° Υ 52'23	15°15'03	min. Earth dist.	2568 Oct 02 09:14	12° Υ 31'32	45.01944 AU
max. Earth dist.	2560 Mar 25 16:39	2° Υ 56'39	45.42646 AU	opposition	2568 Oct 04 21:25	12° Υ 28'34	-16°-52'-48
retrograde	2560 Jul 03 20:58	4° Υ 32'55		direct	2568 Dec 25 03:18	11° Υ 26'51	
min. Earth dist.	2560 Sep 23 00:52	3° Υ 31'44	43.59527 AU				
opposition	2560 Sep 25 18:10	3° Υ 28'26	-16°00'-51	conjunction	2569 Apr 02 06:39	13° Υ 00'06	-16°-12'-38
direct	2560 Dec 15 23:05	2° Υ 25'21		minimum elong	2569 Apr 02 06:37	13° Υ 00'06	16°12'38
				max. Earth dist.	2569 Apr 04 19:36	13° Υ 03'53	47.01656 AU
conjunction	2561 Mar 24 07:36	4° Υ 01'37	-15°-23'-4	retrograde	2569 Jul 14 08:27	14° Υ 37'18	
minimum elong	2561 Mar 24 07:29	4° Υ 01'36	15°23'05	min. Earth dist.	2569 Oct 03 19:55	13° Υ 37'08	45.17934 AU
max. Earth dist.	2561 Mar 27 01:02	4° Υ 05'48	45.61452 AU	opposition	2569 Oct 06 06:11	13° Υ 34'16	-16°-57'-35
retrograde	2561 Jul 05 06:27	5° Υ 41'45		direct	2569 Dec 26 10:38	12° Υ 32'41	

conjunction	2570 Apr 03 14:59	14°♊05'34	-16°-17'-11	retrograde	2578 Jul 24 00:44	24°♊08'09	
minimum elong	2570 Apr 03 14:57	14°♊05'34	16°17'13	min. Earth dist.	2578 Oct 13 22:56	23°♊08'49	46.46164 AU
max. Earth dist.	2570 Apr 06 02:43	14°♊09'15	47.17341 AU	opposition	2578 Oct 16 03:12	23°♊06'17	-17°-24'-22
retrograde	2570 Jul 15 16:23	15°♊42'23		direct	2579 Jan 05 10:32	22°♊05'53	
min. Earth dist.	2570 Oct 05 04:16	14°♊42'19	45.33466 AU				
opposition	2570 Oct 07 14:24	14°♊39'28	-17°-2'00	conjunction	2579 Apr 13 10:20	23°♊36'04	-16°-42'-32
direct	2570 Dec 27 17:45	13°♊37'59		minimum elong	2579 Apr 13 10:23	23°♊36'04	16°42'34
				max. Earth dist.	2579 Apr 15 16:04	23°♊39'17	48.43633 AU
conjunction	2571 Apr 04 22:59	15°♊10'31	-16°-21'-24	retrograde	2579 Jul 25 09:46	25°♊10'13	
minimum elong	2571 Apr 04 22:58	15°♊10'30	16°21'25	min. Earth dist.	2579 Oct 15 08:01	24°♊10'56	46.58687 AU
max. Earth dist.	2571 Apr 07 09:29	15°♊14'06	47.32592 AU	opposition	2579 Oct 17 10:16	24°♊08'31	-17°-25'-38
retrograde	2571 Jul 16 22:50	16°♊46'58		direct	2580 Jan 06 16:52	23°♊08'15	
min. Earth dist.	2571 Oct 06 13:54	15°♊46'56	45.48605 AU				
opposition	2571 Oct 08 22:40	15°♊44'09	-17°-6'-4	conjunction	2580 Apr 13 17:21	24°♊38'12	-16°-43'-44
direct	2571 Dec 29 03:24	14°♊42'47		minimum elong	2580 Apr 13 17:22	24°♊38'12	16°43'44
				max. Earth dist.	2580 Apr 15 21:23	24°♊41'19	48.55889 AU
conjunction	2572 Apr 05 06:53	16°♊14'57	-16°-25'-16	retrograde	2580 Jul 25 19:05	26°♊12'06	
minimum elong	2572 Apr 05 06:51	16°♊14'56	16°25'18	min. Earth dist.	2580 Oct 15 15:03	25°♊12'56	46.70700 AU
max. Earth dist.	2572 Apr 07 17:38	16°♊18'33	47.47484 AU	opposition	2580 Oct 17 17:08	25°♊10'31	-17°-26'-36
retrograde	2572 Jul 17 03:19	17°♊51'03		direct	2581 Jan 06 20:40	24°♊10'22	
min. Earth dist.	2572 Oct 06 22:31	16°♊51'06	45.63395 AU				
opposition	2572 Oct 09 06:34	16°♊48'21	-17°-9'-46	conjunction	2581 Apr 15 00:17	25°♊40'05	-16°-44'-38
direct	2572 Dec 29 14:41	15°♊47'05		minimum elong	2581 Apr 15 00:20	25°♊40'05	16°44'40
				max. Earth dist.	2581 Apr 17 02:53	25°♊43'06	48.67619 AU
conjunction	2573 Apr 06 14:31	17°♊18'55	-16°-28'-47	retrograde	2581 Jul 27 01:11	27°♊13'44	
minimum elong	2573 Apr 06 14:31	17°♊18'55	16°28'47	min. Earth dist.	2581 Oct 17 00:02	26°♊14'34	46.82190 AU
max. Earth dist.	2573 Apr 08 23:36	17°♊22'24	47.62073 AU	opposition	2581 Oct 19 00:02	26°♊12'16	-17°-27'-18
retrograde	2573 Jul 18 12:36	18°♊54'41		direct	2582 Jan 08 03:32	25°♊12'13	
min. Earth dist.	2573 Oct 08 06:15	17°♊54'51	45.77911 AU				
opposition	2573 Oct 10 14:23	17°♊52'06	-17°-13'-6	conjunction	2582 Apr 16 07:12	26°♊41'41	-16°-45'-16
direct	2573 Dec 30 21:48	16°♊50'58		minimum elong	2582 Apr 16 07:15	26°♊41'41	16°45'17
				max. Earth dist.	2582 Apr 18 09:23	26°♊44'40	48.78844 AU
conjunction	2574 Apr 07 22:05	18°♊22'28	-16°-31'-56	retrograde	2582 Jul 28 03:38	28°♊15'03	
minimum elong	2574 Apr 07 22:04	18°♊22'28	16°31'57	min. Earth dist.	2582 Oct 18 07:25	27°♊15'57	46.93166 AU
max. Earth dist.	2574 Apr 10 07:27	18°♊25'57	47.76391 AU	opposition	2582 Oct 20 06:38	27°♊13'41	-17°-27'-43
retrograde	2574 Jul 19 21:15	19°♊57'56		direct	2583 Jan 09 13:44	26°♊13'43	
min. Earth dist.	2574 Oct 09 15:35	18°♊58'08	45.92152 AU				
opposition	2574 Oct 11 22:06	18°♊55'28	-17°-16'-3	conjunction	2583 Apr 17 13:51	27°♊42'56	-16°-45'-37
direct	2575 Jan 01 05:09	17°♊54'28		minimum elong	2583 Apr 17 13:54	27°♊42'56	16°45'39
				max. Earth dist.	2583 Apr 19 13:51	27°♊45'47	48.89585 AU
conjunction	2575 Apr 09 05:35	19°♊25'40	-16°-34'-44	retrograde	2583 Jul 29 10:10	29°♊16'03	
minimum elong	2575 Apr 09 05:37	19°♊25'40	16°34'44	min. Earth dist.	2583 Oct 19 14:35	28°♊16'59	47.03700 AU
max. Earth dist.	2575 Apr 11 14:05	19°♊29'06	47.90458 AU	opposition	2583 Oct 21 13:00	28°♊14'45	-17°-27'-50
retrograde	2575 Jul 21 04:26	21°♊00'50		direct	2584 Jan 10 21:26	27°♊14'52	
min. Earth dist.	2575 Oct 10 22:31	20°♊01'11	46.06125 AU				
opposition	2575 Oct 13 05:24	19°♊58'31	-17°-18'-39	conjunction	2584 Apr 17 20:26	28°♊43'50	-16°-45'-42
direct	2576 Jan 02 11:11	18°♊57'39		minimum elong	2584 Apr 17 20:30	28°♊43'50	16°45'42
				max. Earth dist.	2584 Apr 19 20:28	28°♊46'40	48.99911 AU
conjunction	2576 Apr 09 12:50	20°♊28'35	-16°-37'-10		2584 Jun 19 18:36	0°♊	
minimum elong	2576 Apr 09 12:50	20°♊28'35	16°37'11	retrograde	2584 Jul 29 17:11	0°♊16'41	
max. Earth dist.	2576 Apr 11 20:22	20°♊31'57	48.04248 AU		2584 Sep 08 07:09	30°♊	
retrograde	2576 Jul 21 11:10	22°♊03'28		min. Earth dist.	2584 Oct 19 22:37	29°♊17'37	47.13840 AU
min. Earth dist.	2576 Oct 11 07:18	21°♊03'54	46.19819 AU	opposition	2584 Oct 21 19:24	29°♊15'29	-17°-27'-40
opposition	2576 Oct 13 12:53	21°♊01'18	-17°-20'-54	direct	2585 Jan 11 04:56	28°♊15'40	
direct	2577 Jan 02 18:10	20°♊00'35					
				conjunction	2585 Apr 19 02:43	29°♊44'22	-16°-45'-28
conjunction	2577 Apr 10 20:01	21°♊31'16	-16°-39'-17	minimum elong	2585 Apr 19 02:47	29°♊44'23	16°45'29
minimum elong	2577 Apr 10 20:03	21°♊31'16	16°39'18	max. Earth dist.	2585 Apr 21 01:34	29°♊47'08	49.09890 AU
max. Earth dist.	2577 Apr 13 03:45	21°♊34'38	48.17751 AU		2585 Apr 30 04:33	0°♊	
retrograde	2577 Jul 22 16:13	23°♊05'54		retrograde	2585 Jul 31 00:50	1°♊16'59	
min. Earth dist.	2577 Oct 12 15:15	22°♊06'27	46.33178 AU	min. Earth dist.	2585 Oct 21 04:36	0°♊18'00	47.23648 AU
opposition	2577 Oct 14 20:09	22°♊03'53	-17°-22'-47	opposition	2585 Oct 23 01:34	0°♊15'51	-17°-27'-11
direct	2578 Jan 04 03:39	21°♊03'20			2585 Nov 06 01:05	30°♊	
				direct	2586 Jan 12 09:04	29°♊16'07	
conjunction	2578 Apr 12 03:08	22°♊33'45	-16°-41'-4		2586 Mar 18 07:36	0°♊	
minimum elong	2578 Apr 12 03:09	22°♊33'45	16°41'05				
max. Earth dist.	2578 Apr 14 09:01	22°♊37'00	48.30901 AU	conjunction	2586 Apr 20 09:02	0°♊44'36	-16°-44'-56

minimum elong	2586 Apr 20 09:07	0°844'36	16°44'57	min. Earth dist.	2594 Oct 30 18:30	9°810'56	47.95502 AU
max. Earth dist.	2586 Apr 22 06:55	0°847'18	49.19544 AU	opposition	2594 Nov 01 04:59	9°809'18	-17°-9'-49
retrograde	2586 Aug 01 07:51	2°816'58		direct	2595 Jan 21 15:50	8°810'18	
min. Earth dist.	2586 Oct 22 12:15	1°818'00	47.33149 AU				
opposition	2586 Oct 24 07:38	1°815'55	-17°-26'-23	conjunction	2595 Apr 29 15:13	9°837'11	-16°-27'-41
direct	2587 Jan 13 13:14	0°816'16		minimum elong	2595 Apr 29 15:20	9°837'12	16°27'42
				max. Earth dist.	2595 May 01 03:26	9°839'17	49.89803 AU
conjunction	2587 Apr 21 15:22	1°844'33	-16°-44'-7	retrograde	2595 Aug 10 10:40	11°807'50	
minimum elong	2587 Apr 21 15:26	1°844'33	16°44'08	min. Earth dist.	2595 Oct 31 23:51	10°809'12	48.01136 AU
max. Earth dist.	2587 Apr 23 13:11	1°847'14	49.28911 AU	opposition	2595 Nov 02 10:11	10°807'35	-17°-6'-36
retrograde	2587 Aug 02 11:04	3°816'40		direct	2596 Jan 22 19:45	9°808'37	
min. Earth dist.	2587 Oct 23 18:31	2°817'47	47.42342 AU				
opposition	2587 Oct 25 13:33	2°815'44	-17°-25'-17	conjunction	2596 Apr 29 20:42	10°835'21	-16°-24'-31
direct	2588 Jan 14 20:42	1°816'10		minimum elong	2596 Apr 29 20:48	10°835'21	16°24'33
				max. Earth dist.	2596 May 01 07:45	10°837'22	49.95274 AU
conjunction	2588 Apr 21 21:18	2°844'14	-16°-42'-59	retrograde	2596 Aug 10 17:14	12°805'50	
minimum elong	2588 Apr 21 21:24	2°844'14	16°43'00	min. Earth dist.	2596 Nov 01 06:58	11°807'09	48.06368 AU
max. Earth dist.	2588 Apr 23 17:25	2°846'49	49.37976 AU	opposition	2596 Nov 02 15:26	11°805'37	-17°-3'-8
retrograde	2588 Aug 02 16:35	4°816'10		direct	2597 Jan 22 23:14	10°806'42	
min. Earth dist.	2588 Oct 24 01:03	3°817'20	47.51235 AU				
opposition	2588 Oct 25 19:28	3°815'19	-17°-23'-53	conjunction	2597 May 01 02:20	11°833'17	-16°-21'-6
direct	2589 Jan 15 03:25	2°815'51		minimum elong	2597 May 01 02:28	11°833'18	16°21'06
				max. Earth dist.	2597 May 02 13:14	11°835'18	50.00391 AU
conjunction	2589 Apr 23 03:27	3°843'43	-16°-41'-34	retrograde	2597 Aug 11 20:01	13°803'36	
minimum elong	2589 Apr 23 03:31	3°843'44	16°41'35	opposition	2597 Nov 03 20:24	12°803'27	-16°-59'-24
max. Earth dist.	2589 Apr 24 23:38	3°846'18	49.46725 AU	min. Earth dist.	2597 Nov 02 12:11	12°804'57	48.11253 AU
retrograde	2589 Aug 03 22:31	5°815'28		direct	2598 Jan 24 05:01	11°804'33	
min. Earth dist.	2589 Oct 25 08:27	4°816'40	47.59780 AU				
opposition	2589 Oct 27 01:16	4°814'43	-17°-22'-11	conjunction	2598 May 02 07:44	12°831'01	-16°-17'-24
direct	2590 Jan 16 11:06	3°815'21		minimum elong	2598 May 02 07:51	12°831'02	16°17'26
				max. Earth dist.	2598 May 03 16:46	12°832'55	50.05185 AU
conjunction	2590 Apr 24 09:29	4°843'03	-16°-39'-53	retrograde	2598 Aug 13 00:55	14°801'11	
minimum elong	2590 Apr 24 09:35	4°843'03	16°39'54	min. Earth dist.	2598 Nov 03 18:05	13°802'34	48.15838 AU
max. Earth dist.	2590 Apr 26 04:11	4°845'32	49.55120 AU	opposition	2598 Nov 05 01:24	13°801'06	-16°-55'-23
retrograde	2590 Aug 05 07:17	6°814'36		direct	2599 Jan 25 10:43	12°802'16	
min. Earth dist.	2590 Oct 26 14:15	5°815'54	47.67931 AU				
opposition	2590 Oct 28 06:55	5°813'58	-17°-20'-13	conjunction	2599 May 03 13:13	13°828'36	-16°-13'-27
direct	2591 Jan 17 14:33	4°814'42		minimum elong	2599 May 03 13:22	13°828'37	16°13'27
				max. Earth dist.	2599 May 04 22:21	13°830'30	50.09683 AU
conjunction	2591 Apr 25 15:32	5°842'14	-16°-37'-55	retrograde	2599 Aug 14 04:52	14°858'38	
minimum elong	2591 Apr 25 15:37	5°842'15	16°37'56	min. Earth dist.	2599 Nov 05 00:10	14°800'02	48.20123 AU
max. Earth dist.	2591 Apr 27 08:54	5°844'39	49.63074 AU	opposition	2599 Nov 06 06:15	13°858'37	-16°-51'-5
retrograde	2591 Aug 06 14:16	7°813'37		direct	2600 Jan 26 18:32	12°859'50	
min. Earth dist.	2591 Oct 27 22:07	6°814'54	47.75618 AU				
opposition	2591 Oct 29 12:32	6°813'05	-17°-17'-59	conjunction	2600 May 04 18:32	14°826'04	-16°-9'-13
direct	2592 Jan 18 18:23	5°813'53		minimum elong	2600 May 04 18:39	14°826'05	16°09'14
				max. Earth dist.	2600 May 06 02:19	14°827'54	50.13909 AU
conjunction	2592 Apr 25 21:39	6°841'17	-16°-35'-43		2600 May 30 01:43	15°8	
minimum elong	2592 Apr 25 21:45	6°841'17	16°35'44	retrograde	2600 Aug 15 13:08	15°855'59	
max. Earth dist.	2592 Apr 27 14:25	6°843'39	49.70547 AU		2600 Nov 03 22:49	15°R8	
retrograde	2592 Aug 06 17:17	8°812'28		min. Earth dist.	2600 Nov 06 04:52	14°857'28	48.24127 AU
min. Earth dist.	2592 Oct 28 04:23	7°813'48	47.82780 AU	opposition	2600 Nov 07 11:03	14°856'03	-16°-46'-31
opposition	2592 Oct 29 18:05	7°812'01	-17°-15'-30				
direct	2593 Jan 19 01:54	6°812'55					
conjunction	2593 Apr 27 03:26	7°840'08	-16°-33'-17				
minimum elong	2593 Apr 27 03:32	7°840'09	16°33'17				
max. Earth dist.	2593 Apr 28 17:45	7°842'22	49.77485 AU				
retrograde	2593 Aug 07 22:19	9°811'09					
min. Earth dist.	2593 Oct 29 11:12	8°812'30	47.89407 AU				
opposition	2593 Oct 30 23:40	8°810'47	-17°-12'-47				
direct	2594 Jan 20 08:37	7°811'43					
conjunction	2594 Apr 28 09:26	8°838'47	-16°-30'-36				
minimum elong	2594 Apr 28 09:33	8°838'47	16°30'37				
max. Earth dist.	2594 Apr 29 23:24	8°840'59	49.83887 AU				
retrograde	2594 Aug 09 03:37	10°809'37					

direct	2600 Jan 26 18:32	12°8'59"50		max. Earth dist.	2607 May 13 07:41	21°8'08"04	50.32368 AU
				retrograde	2607 Aug 23 00:57	22°8'35"54	
conjunction	2600 May 04 18:32	14°8'26"04	-16°-9'-13	opposition	2607 Nov 14 19:39	21°8'36"19	-16°-7'-43
minimum elong	2600 May 04 18:39	14°8'26"05	16°09'14	min. Earth dist.	2607 Nov 13 22:15	21°8'37"19	48.40367 AU
max. Earth dist.	2600 May 06 02:19	14°8'27"54	50.13909 AU	direct	2608 Feb 04 05:14	20°8'37"51	
	2600 May 30 01:43	15°8'					
retrograde	2600 Aug 15 13:08	15°8'55"59		conjunction	2608 May 12 12:57	22°8'03"26	-15°-26'-45
	2600 Nov 03 22:49	15°8'		minimum elong	2608 May 12 13:07	22°8'03"27	15°26'46
min. Earth dist.	2600 Nov 06 04:52	14°8'57"28	48.24127 AU	max. Earth dist.	2608 May 13 10:36	22°8'04"40	50.33094 AU
opposition	2600 Nov 07 11:03	14°8'56"03	-16°-46'-31	retrograde	2608 Aug 23 05:30	23°8'32"30	
direct	2601 Jan 27 21:20	13°8'57"20		min. Earth dist.	2608 Nov 14 03:54	22°8'33"53	48.40802 AU
	2601 Apr 18 15:52	15°8'		opposition	2608 Nov 15 00:08	22°8'32"56	-16°-1'-15
				direct	2609 Feb 04 09:56	21°8'34"28	
conjunction	2601 May 05 23:43	15°8'23"29	-16°-4'-44				
minimum elong	2601 May 05 23:53	15°8'23"29	16°04'45	conjunction	2609 May 13 18:04	22°8'59"58	-15°-20'-26
max. Earth dist.	2601 May 07 06:39	15°8'25"15	50.17831 AU	minimum elong	2609 May 13 18:13	22°8'59"58	15°20'27
retrograde	2601 Aug 16 21:09	16°8'53"17		max. Earth dist.	2609 May 14 15:37	23°8'01"11	50.33439 AU
min. Earth dist.	2601 Nov 07 11:41	15°8'54"45	48.27812 AU	retrograde	2609 Aug 24 07:22	24°8'28"56	
opposition	2601 Nov 08 15:59	15°8'53"25	-16°-41'-41	min. Earth dist.	2609 Nov 15 09:40	23°8'30"16	48.40865 AU
	2602 Jan 07 02:42	15°8'		opposition	2609 Nov 16 04:34	23°8'29"23	-15°-54'-33
direct	2602 Jan 28 22:51	14°8'54"47		direct	2610 Feb 05 17:47	22°8'30"54	
	2602 Feb 19 21:01	15°8'					
conjunction	2602 May 07 05:10	16°8'20"51	-15°-59'-59	conjunction	2610 May 14 23:12	23°8'56"21	-15°-13'-52
minimum elong	2602 May 07 05:18	16°8'20"51	16°00'00	minimum elong	2610 May 14 23:23	23°8'56"21	15°13'52
max. Earth dist.	2602 May 08 11:44	16°8'22"36	50.21424 AU	max. Earth dist.	2610 May 15 19:20	23°8'57"29	50.33454 AU
retrograde	2602 Aug 17 23:56	17°8'50"33		retrograde	2610 Aug 25 13:30	25°8'25"14	
opposition	2602 Nov 09 20:31	16°8'50"46	-16°-36'-36	opposition	2610 Nov 17 08:45	24°8'25"42	-15°-47'-36
min. Earth dist.	2602 Nov 08 16:40	16°8'52"04	48.31123 AU	min. Earth dist.	2610 Nov 16 13:56	24°8'26"35	48.40616 AU
direct	2603 Jan 30 04:46	15°8'52"11		direct	2611 Feb 06 21:52	23°8'27"13	
conjunction	2603 May 08 10:28	17°8'18"11	-15°-55'00	conjunction	2611 May 16 04:16	24°8'52"38	-15°-7'-3
minimum elong	2603 May 08 10:37	17°8'18"12	15°55'01	minimum elong	2611 May 16 04:26	24°8'52"38	15°07'04
max. Earth dist.	2603 May 09 14:48	17°8'19"49	50.24611 AU	max. Earth dist.	2611 May 16 23:20	24°8'53"42	50.33153 AU
retrograde	2603 Aug 19 03:22	18°8'47"48		retrograde	2611 Aug 26 21:16	26°8'21"27	
min. Earth dist.	2603 Nov 09 22:48	17°8'49"19	48.34004 AU	opposition	2611 Nov 18 13:11	25°8'21"57	-15°-40'-23
opposition	2603 Nov 11 01:16	17°8'48"05	-16°-31'-16	min. Earth dist.	2611 Nov 17 20:11	25°8'22"44	48.40065 AU
direct	2604 Jan 31 10:36	16°8'49"34		direct	2612 Feb 07 23:40	24°8'23"29	
conjunction	2604 May 08 15:48	18°8'15"30	-15°-49'-47	conjunction	2612 May 16 09:14	25°8'48"52	-14°-59'-59
minimum elong	2604 May 08 15:57	18°8'15"30	15°49'48	minimum elong	2612 May 16 09:26	25°8'48"52	15°00'00
max. Earth dist.	2604 May 09 19:48	18°8'17"05	50.27325 AU	max. Earth dist.	2612 May 17 04:11	25°8'49"56	50.32571 AU
retrograde	2604 Aug 19 07:09	19°8'45"01		retrograde	2612 Aug 27 00:44	27°8'17"38	
min. Earth dist.	2604 Nov 10 05:21	18°8'46"31	48.36372 AU	opposition	2612 Nov 18 17:28	26°8'18"10	-15°-32'-54
opposition	2604 Nov 11 06:02	18°8'45"21	-16°-25'-42	min. Earth dist.	2612 Nov 18 00:28	26°8'18"58	48.39212 AU
direct	2605 Jan 31 17:58	17°8'46"52		direct	2613 Feb 08 04:18	25°8'19"44	
conjunction	2605 May 09 21:11	19°8'12"43	-15°-44'-21	conjunction	2613 May 17 14:14	26°8'45"07	-14°-52'-40
minimum elong	2605 May 09 21:21	19°8'12"43	15°44'23	minimum elong	2613 May 17 14:23	26°8'45"07	14°52'41
max. Earth dist.	2605 May 10 23:12	19°8'14"12	50.29530 AU	max. Earth dist.	2613 May 18 07:11	26°8'46"04	50.31685 AU
retrograde	2605 Aug 20 13:53	20°8'42"08		retrograde	2613 Aug 28 04:43	28°8'13"52	
min. Earth dist.	2605 Nov 11 10:23	19°8'43"39	48.38216 AU	opposition	2613 Nov 19 21:46	27°8'14"26	-15°-25'-11
opposition	2605 Nov 12 10:36	19°8'42"31	-16°-19'-56	min. Earth dist.	2613 Nov 19 06:01	27°8'15"11	48.38052 AU
direct	2606 Feb 01 22:15	18°8'44"03		direct	2614 Feb 09 08:53	26°8'16"03	
conjunction	2606 May 11 02:32	20°8'09"48	-15°-38'-43	conjunction	2614 May 18 19:26	27°8'41"26	-14°-45'-7
minimum elong	2606 May 11 02:41	20°8'09"49	15°38'43	minimum elong	2614 May 18 19:37	27°8'41"27	14°45'08
max. Earth dist.	2606 May 12 02:53	20°8'11"11	50.31196 AU	max. Earth dist.	2614 May 19 12:19	27°8'42"23	50.30458 AU
retrograde	2606 Aug 21 21:03	21°8'39"06		retrograde	2614 Aug 29 08:08	29°8'10"11	
opposition	2606 Nov 13 15:17	20°8'39"31	-16°-13'-56	min. Earth dist.	2614 Nov 20 11:52	28°8'11"28	48.36506 AU
min. Earth dist.	2606 Nov 12 17:19	20°8'40"33	48.39532 AU	opposition	2614 Nov 21 02:05	28°8'10"48	-15°-17'-13
direct	2607 Feb 03 01:14	19°8'41"03		direct	2615 Feb 10 15:43	27°8'12"27	
conjunction	2607 May 12 07:52	21°8'06"43	-15°-32'-51	conjunction	2615 May 20 00:32	28°8'37"51	-14°-37'-20
minimum elong	2607 May 12 08:01	21°8'06"44	15°32'52	minimum elong	2615 May 20 00:42	28°8'37"52	14°37'20
				max. Earth dist.	2615 May 20 15:36	28°8'38"42	50.28830 AU

	2615 Aug 05 07:37	0°II	minimum elong	2623 May 27 18:16	6°II10'08	13°27'26
retrograde	2615 Aug 30 14:47	0°II06'36	max. Earth dist.	2623 May 27 22:17	6°II10'21	49.98184 AU
	2615 Sep 25 02:38	30°R8	retrograde	2623 Sep 07 07:43	7°II38'48	
opposition	2615 Nov 22 06:15	29°807'17 -15°-9'-2	opposition	2623 Nov 29 16:15	6°II39'26	-13°-55'-37
min. Earth dist.	2615 Nov 21 16:28	29°807'56 48.34526 AU	min. Earth dist.	2623 Nov 29 12:25	6°II39'37	48.01074 AU
direct	2616 Feb 11 19:18	28°808'57	direct	2624 Feb 19 03:44	5°II40'52	
conjunction	2616 May 20 05:44	29°834'24 -14°-29'-20	conjunction	2624 May 27 23:18	7°II06'31	-13°-17'-39
minimum elong	2616 May 20 05:55	29°834'24 14°29'21	minimum elong	2624 May 27 23:28	7°II06'32	13°17'40
max. Earth dist.	2616 May 20 19:12	29°835'09 50.26717 AU	max. Earth dist.	2624 May 28 03:29	7°II06'45	49.92617 AU
	2616 Jun 08 09:28	0°II	retrograde	2624 Sep 07 09:16	8°II35'14	
retrograde	2616 Aug 30 22:01	1°II03'09	opposition	2624 Nov 29 20:30	7°II35'51	-13°-45'-22
opposition	2616 Nov 22 10:41	0°II03'52 -15°00'-37	min. Earth dist.	2624 Nov 29 17:47	7°II35'58	47.95221 AU
min. Earth dist.	2616 Nov 21 23:14	0°II04'24 48.32035 AU	direct	2625 Feb 19 11:16	6°II37'14	
	2616 Nov 25 21:24	30°R8				
direct	2617 Feb 11 21:38	29°805'33	conjunction	2625 May 29 04:25	8°II02'58	-13°-7'-39
	2617 Apr 28 01:05	0°II	minimum elong	2625 May 29 04:37	8°II02'59	13°07'40
			max. Earth dist.	2625 May 29 07:11	8°II03'07	49.86767 AU
conjunction	2617 May 21 11:00	0°II31'00 -14°-21'-8	retrograde	2625 Sep 08 14:40	9°II31'43	
minimum elong	2617 May 21 11:10	0°II31'01 14°21'08	opposition	2625 Dec 01 00:43	8°II32'20	-13°-34'-52
max. Earth dist.	2617 May 21 23:43	0°II31'44 50.24085 AU	min. Earth dist.	2625 Nov 30 22:08	8°II32'27	47.89067 AU
retrograde	2617 Sep 01 03:01	1°II59'44	direct	2626 Feb 20 15:50	7°II33'42	
opposition	2617 Nov 23 14:59	1°II00'29 -14°-52'00				
min. Earth dist.	2617 Nov 23 04:12	1°II00'59 48.28990 AU	conjunction	2626 May 30 09:45	8°II59'30	-12°-57'-24
direct	2618 Feb 13 00:57	0°II02'09	minimum elong	2626 May 30 09:56	8°II59'31	12°57'24
			max. Earth dist.	2626 May 30 11:11	8°II59'35	49.80578 AU
conjunction	2618 May 22 16:14	1°II27'39 -14°-12'-43	retrograde	2626 Sep 09 21:39	10°II28'20	
minimum elong	2618 May 22 16:25	1°II27'39 14°12'45	opposition	2626 Dec 02 04:58	9°II28'56	-13°-24'-7
max. Earth dist.	2618 May 23 02:17	1°II28'13 50.20895 AU	min. Earth dist.	2626 Dec 02 04:31	9°II28'57	47.82557 AU
retrograde	2618 Sep 02 07:52	2°II56'21	direct	2627 Feb 21 19:03	8°II30'17	
opposition	2618 Nov 24 19:13	1°II57'06 -14°-43'-10				
min. Earth dist.	2618 Nov 24 10:10	1°II57'31 48.25408 AU	conjunction	2627 May 31 15:12	9°II56'11	-12°-46'-55
direct	2619 Feb 14 05:11	0°II58'45	minimum elong	2627 May 31 15:25	9°II56'12	12°46'57
			max. Earth dist.	2627 May 31 16:14	9°II56'15	49.74017 AU
conjunction	2619 May 23 21:33	2°II24'15 -14°-4'-7	retrograde	2627 Sep 11 03:54	11°II25'04	
minimum elong	2619 May 23 21:45	2°II24'16 14°04'07	opposition	2627 Dec 03 09:14	10°II25'40	-13°-13'-9
max. Earth dist.	2619 May 24 07:04	2°II24'47 50.17180 AU	min. Earth dist.	2627 Dec 03 09:15	10°II25'40	47.75629 AU
retrograde	2619 Sep 03 09:23	3°II52'57	direct	2628 Feb 22 21:59	9°II26'59	
opposition	2619 Nov 25 23:30	2°II53'41 -14°-34'-8				
min. Earth dist.	2619 Nov 25 15:57	2°II54'02 48.21315 AU	conjunction	2628 May 31 20:27	10°II53'00	-12°-36'-13
direct	2620 Feb 15 12:48	1°II55'17	minimum elong	2628 May 31 20:39	10°II53'01	12°36'14
			max. Earth dist.	2628 May 31 18:59	10°II52'55	49.67001 AU
conjunction	2620 May 24 02:33	3°II20'48 -13°-55'-17	retrograde	2628 Sep 11 10:01	12°II21'57	
minimum elong	2620 May 24 02:44	3°II20'48 13°55'18	opposition	2628 Dec 03 13:42	11°II22'33	-13°-1'-57
max. Earth dist.	2620 May 24 10:26	3°II21'14 50.13002 AU	min. Earth dist.	2628 Dec 03 15:23	11°II22'28	47.68226 AU
retrograde	2620 Sep 03 14:43	4°II49'29	direct	2629 Feb 23 01:16	10°II23'48	
opposition	2620 Nov 26 03:42	3°II50'12 -14°-24'-52				
min. Earth dist.	2620 Nov 25 20:33	3°II50'32 48.16790 AU	conjunction	2629 Jun 02 02:08	11°II49'56	-12°-25'-19
direct	2621 Feb 15 18:06	2°II51'45	minimum elong	2629 Jun 02 02:20	11°II49'57	12°25'20
			max. Earth dist.	2629 Jun 02 00:02	11°II49'49	49.59475 AU
conjunction	2621 May 25 07:44	4°II17'17 -13°-46'-14	retrograde	2629 Sep 12 12:47	13°II18'58	
minimum elong	2621 May 25 07:56	4°II17'18 13°46'14	opposition	2629 Dec 04 18:05	12°II19'31	-12°-50'-32
max. Earth dist.	2621 May 25 14:17	4°II17'39 50.08404 AU	min. Earth dist.	2629 Dec 04 21:24	12°II19'22	47.60287 AU
retrograde	2621 Sep 04 23:09	5°II45'58	direct	2630 Feb 24 08:01	11°II20'44	
opposition	2621 Nov 27 07:55	4°II46'39 -14°-15'-21				
min. Earth dist.	2621 Nov 27 02:46	4°II46'53 48.11881 AU	conjunction	2630 Jun 03 07:46	12°II46'58	-12°-14'-11
direct	2622 Feb 16 19:54	3°II48'10	minimum elong	2630 Jun 03 07:58	12°II46'59	12°14'12
			max. Earth dist.	2630 Jun 03 03:40	12°II46'44	49.51430 AU
conjunction	2622 May 26 13:00	5°II13'43 -13°-36'-57	retrograde	2630 Sep 13 17:35	14°II16'04	
minimum elong	2622 May 26 13:11	5°II13'44 13°36'58	opposition	2630 Dec 05 22:30	13°II16'35	-12°-38'-54
max. Earth dist.	2622 May 26 19:12	5°II14'04 50.03458 AU	min. Earth dist.	2630 Dec 06 02:29	13°II16'23	47.51833 AU
retrograde	2622 Sep 06 03:41	6°II42'23	direct	2631 Feb 25 13:42	12°II17'43	
opposition	2622 Nov 28 12:03	5°II43'03 -14°-5'-37				
min. Earth dist.	2622 Nov 28 07:00	5°II43'17 48.06628 AU	conjunction	2631 Jun 04 13:18	13°II44'03	-12°-2'-51
direct	2623 Feb 17 23:25	4°II44'31	minimum elong	2631 Jun 04 13:30	13°II44'04	12°02'53
			max. Earth dist.	2631 Jun 04 07:29	13°II43'44	49.42864 AU
conjunction	2623 May 27 18:04	6°II10'07 -13°-27'-25	retrograde	2631 Sep 15 01:04	15°II13'14	

opposition	2631 Dec 07 03:00	14°II13'42	-12°-27'-3	conjunction	2640 Jun 12 17:46	22°II23'38	-10°-10'-13
min. Earth dist.	2631 Dec 07 09:11	14°II13'24	47.42888 AU	minimum elong	2640 Jun 12 17:58	22°II23'39	10°10'15
direct	2632 Feb 26 16:54	13°II14'45		max. Earth dist.	2640 Jun 12 02:11	22°II22'44	48.49979 AU
				retrograde	2640 Sep 23 02:01	23°II54'03	
conjunction	2632 Jun 04 18:57	14°II41'12	-11°-51'-18	opposition	2640 Dec 14 20:43	22°II54'05	-10°-29'-9
minimum elong	2632 Jun 04 19:09	14°II41'13	11°51'19	min. Earth dist.	2640 Dec 15 11:14	22°II53'23	46.47115 AU
max. Earth dist.	2632 Jun 04 12:40	14°II40'51	49.33855 AU	direct	2641 Mar 06 11:52	21°II54'26	
retrograde	2632 Sep 15 06:58	16°II10'27		max. Earth dist.	2641 Jun 13 06:44	23°II21'35	48.37838 AU
opposition	2632 Dec 07 07:21	15°II10'52	-12°-14'-57				
min. Earth dist.	2632 Dec 07 13:45	15°II10'33	47.33521 AU	conjunction	2641 Jun 14 00:10	23°II22'35	-9°-56'-31
direct	2633 Feb 26 20:00	14°II11'49		minimum elong	2641 Jun 14 00:21	23°II22'35	9°56'31
				retrograde	2641 Sep 24 09:20	24°II53'12	
conjunction	2633 Jun 06 00:27	15°II38'25	-11°-39'-31	opposition	2641 Dec 16 01:55	23°II53'08	-10°-14'-49
minimum elong	2633 Jun 06 00:38	15°II38'25	11°39'32	min. Earth dist.	2641 Dec 16 18:42	23°II52'20	46.34571 AU
max. Earth dist.	2633 Jun 05 16:00	15°II37'56	49.24448 AU	direct	2642 Mar 07 16:56	22°II53'24	
retrograde	2633 Sep 16 12:26	17°II07'45					
opposition	2633 Dec 08 11:53	16°II08'06	-12°-2'-37	conjunction	2642 Jun 15 06:48	24°II21'46	-9°-42'-35
min. Earth dist.	2633 Dec 08 19:49	16°II07'43	47.23793 AU	minimum elong	2642 Jun 15 06:59	24°II21'46	9°42'36
direct	2634 Feb 28 00:21	15°II08'58		max. Earth dist.	2642 Jun 14 12:33	24°II20'42	48.25186 AU
				retrograde	2642 Sep 25 17:25	25°II52'33	
conjunction	2634 Jun 07 06:14	16°II35'43	-11°-27'-30	opposition	2642 Dec 17 06:57	24°II52'24	-10°00'-15
minimum elong	2634 Jun 07 06:26	16°II35'43	11°27'31	min. Earth dist.	2642 Dec 18 00:13	24°II51'35	46.21508 AU
max. Earth dist.	2634 Jun 06 21:36	16°II35'13	49.14691 AU	direct	2643 Mar 08 20:02	23°II52'32	
retrograde	2634 Sep 17 14:10	18°II05'09					
opposition	2634 Dec 09 16:17	17°II05'26	-11°-50'-2	conjunction	2643 Jun 16 13:20	25°II21'07	-9°-28'-25
min. Earth dist.	2634 Dec 10 01:16	17°II05'01	47.13732 AU	minimum elong	2643 Jun 16 13:31	25°II21'08	9°28'26
direct	2635 Mar 01 08:14	16°II06'14		max. Earth dist.	2643 Jun 15 16:33	25°II19'55	48.12027 AU
				retrograde	2643 Sep 27 01:02	26°II52'05	
conjunction	2635 Jun 08 11:53	17°II33'07	-11°-15'-14	opposition	2643 Dec 18 12:15	25°II51'50	-9°-45'-26
minimum elong	2635 Jun 08 12:04	17°II33'08	11°15'15	min. Earth dist.	2643 Dec 19 07:23	25°II50'55	46.07972 AU
max. Earth dist.	2635 Jun 08 01:49	17°II32'33	49.04645 AU	direct	2644 Mar 09 00:03	24°II51'49	
retrograde	2635 Sep 18 19:32	19°II02'42					
opposition	2635 Dec 10 20:49	18°II02'56	-11°-37'-12	conjunction	2644 Jun 16 19:55	26°II20'38	-9°-14'-2
min. Earth dist.	2635 Dec 11 05:54	18°II02'30	47.03400 AU	minimum elong	2644 Jun 16 20:05	26°II20'38	9°14'03
direct	2636 Mar 01 13:23	17°II03'39		max. Earth dist.	2644 Jun 15 22:43	26°II19'24	47.98408 AU
				retrograde	2644 Sep 27 04:38	27°II51'46	
conjunction	2636 Jun 08 17:31	18°II30'42	-11°-2'-44	opposition	2644 Dec 18 17:36	26°II51'24	-9°-30'-22
minimum elong	2636 Jun 08 17:43	18°II30'43	11°02'45	min. Earth dist.	2644 Dec 19 13:52	26°II50'25	45.93995 AU
max. Earth dist.	2636 Jun 08 06:23	18°II30'04	48.94318 AU	direct	2645 Mar 10 08:04	25°II51'14	
retrograde	2636 Sep 19 02:47	20°II00'26		max. Earth dist.	2645 Jun 17 03:45	27°II18'57	47.84391 AU
opposition	2636 Dec 11 01:35	19°II00'37	-11°-24'-6				
min. Earth dist.	2636 Dec 11 12:26	19°II00'06	46.92798 AU	conjunction	2645 Jun 18 02:38	27°II20'17	-8°-59'-24
direct	2637 Mar 02 16:59	18°II01'16		minimum elong	2645 Jun 18 02:49	27°II20'18	8°59'25
				retrograde	2645 Sep 28 09:44	28°II51'36	
conjunction	2637 Jun 09 23:28	19°II28'31	-10°-49'-58	opposition	2645 Dec 19 22:49	27°II51'07	-9°-15'-3
minimum elong	2637 Jun 09 23:38	19°II28'31	10°49'59	min. Earth dist.	2645 Dec 20 19:37	27°II50'07	45.79654 AU
max. Earth dist.	2637 Jun 09 12:09	19°II27'52	48.83737 AU	direct	2646 Mar 11 14:51	26°II50'48	
retrograde	2637 Sep 20 09:58	20°II58'24		max. Earth dist.	2646 Jun 18 09:20	28°II18'41	47.70010 AU
opposition	2637 Dec 12 06:08	19°II58'32	-11°-10'-44				
min. Earth dist.	2637 Dec 12 17:04	19°II58'01	46.81920 AU	conjunction	2646 Jun 19 09:32	28°II20'06	-8°-44'-31
direct	2638 Mar 03 20:00	18°II59'08		minimum elong	2646 Jun 19 09:42	28°II20'07	8°44'33
				retrograde	2646 Sep 29 16:10	29°II51'39	
conjunction	2638 Jun 11 05:25	20°II26'35	-10°-36'-57	opposition	2646 Dec 21 04:23	28°II51'02	-8°-59'-29
minimum elong	2638 Jun 11 05:37	20°II26'36	10°36'59	min. Earth dist.	2646 Dec 22 03:06	28°II49'56	45.64980 AU
max. Earth dist.	2638 Jun 10 15:55	20°II25'49	48.72859 AU	direct	2647 Mar 12 20:46	27°II50'34	
retrograde	2638 Sep 21 17:42	21°II56'38					
opposition	2638 Dec 13 10:57	20°II56'45	-10°-57'-7	conjunction	2647 Jun 20 16:24	29°II20'07	-8°-29'-23
min. Earth dist.	2638 Dec 13 23:24	20°II56'09	46.70730 AU	minimum elong	2647 Jun 20 16:34	29°II20'08	8°29'24
direct	2639 Mar 04 22:36	19°II57'16		max. Earth dist.	2647 Jun 19 15:56	29°II18'42	47.55331 AU
					2647 Jul 20 02:39	0°☾	
conjunction	2639 Jun 12 11:33	21°II24'58	-10°-23'-43	retrograde	2647 Sep 30 23:28	0°☾51'54	
minimum elong	2639 Jun 12 11:44	21°II24'59	10°23'43		2647 Dec 14 19:20	30°☾II	
max. Earth dist.	2639 Jun 11 21:48	21°II24'11	48.61625 AU	opposition	2647 Dec 22 09:53	29°II51'10	-8°-43'-38
retrograde	2639 Sep 22 21:46	22°II55'12		min. Earth dist.	2647 Dec 23 08:29	29°II50'04	45.50020 AU
opposition	2639 Dec 14 15:49	21°II55'16	-10°-43'-15	direct	2648 Mar 13 01:40	28°II50'34	
min. Earth dist.	2639 Dec 15 05:33	21°II54'37	46.59144 AU		2648 Jun 06 07:24	0°☾	
direct	2640 Mar 05 05:08	20°II55'43					

conjunction	2648 Jun 20 23:20	0°☾20'24	-8°-14'00	conjunction	2656 Jun 29 14:00	8°☾37'42	-6°-1'-47
minimum elong	2648 Jun 20 23:30	0°☾20'25	8°14'02	minimum elong	2656 Jun 29 14:08	8°☾37'43	6°01'48
max. Earth dist.	2648 Jun 19 20:48	0°☾18'51	47.40378 AU	retrograde	2656 Oct 09 20:18	10°☾12'17	
retrograde	2648 Oct 01 09:03	1°☾52'26		opposition	2656 Dec 30 18:25	9°☾10'30	-6°-8'-58
opposition	2648 Dec 22 15:37	0°☾51'36	-8°-27'-31	min. Earth dist.	2657 Jan 01 04:30	9°☾08'48	43.99696 AU
min. Earth dist.	2648 Dec 23 15:40	0°☾50'26	45.34809 AU	direct	2657 Mar 22 09:54	8°☾08'31	
	2649 Feb 13 08:35	30°R II		max. Earth dist.	2657 Jun 29 08:57	9°☾39'26	45.89406 AU
direct	2649 Mar 14 04:39	29°II50'51					
	2649 Apr 12 00:38	0°☾		conjunction	2657 Jun 30 22:36	9°☾41'42	-5°-44'-8
max. Earth dist.	2649 Jun 21 04:04	1°☾19'28	47.25168 AU	minimum elong	2657 Jun 30 22:44	9°☾41'42	5°44'10
				retrograde	2657 Oct 11 04:31	11°☾16'38	
conjunction	2649 Jun 22 06:35	1°☾21'01	-7°-58'-21	opposition	2658 Jan 01 01:21	10°☾12'41	-5°-50'-27
minimum elong	2649 Jun 22 06:45	1°☾21'02	7°58'22	min. Earth dist.	2658 Jan 02 11:34	10°☾12'58	43.80892 AU
retrograde	2649 Oct 02 15:16	2°☾53'19		direct	2658 Mar 23 16:51	9°☾12'28	
opposition	2649 Dec 23 21:28	1°☾52'23	-8°-11'-7	max. Earth dist.	2658 Jun 30 15:29	10°☾43'39	45.70548 AU
min. Earth dist.	2649 Dec 24 22:19	1°☾51'10	45.19321 AU				
direct	2650 Mar 15 11:34	0°☾51'31		conjunction	2658 Jul 02 07:17	10°☾46'04	-5°-26'-14
max. Earth dist.	2650 Jun 22 09:44	2°☾20'22	47.09680 AU	minimum elong	2658 Jul 02 07:25	10°☾46'04	5°26'14
				retrograde	2658 Oct 12 16:17	12°☾21'22	
conjunction	2650 Jun 23 13:54	2°☾22'02	-7°-42'-27	opposition	2659 Jan 02 08:30	11°☾19'13	-5°-31'-39
minimum elong	2650 Jun 23 14:03	2°☾22'02	7°42'28	min. Earth dist.	2659 Jan 03 20:27	11°☾17'25	43.61791 AU
retrograde	2650 Oct 03 21:23	3°☾54'37		direct	2659 Mar 24 20:42	10°☾16'47	
opposition	2650 Dec 25 03:19	2°☾53'37	-7°-54'-27	max. Earth dist.	2659 Jul 02 00:32	11°☾48'25	45.51417 AU
min. Earth dist.	2650 Dec 26 04:48	2°☾52'22	45.03541 AU				
direct	2651 Mar 16 18:08	1°☾52'37		conjunction	2659 Jul 03 16:15	11°☾50'49	-5°-8'-4
				minimum elong	2659 Jul 03 16:22	11°☾50'49	5°08'05
conjunction	2651 Jun 24 21:27	3°☾23'30	-7°-26'-17	retrograde	2659 Oct 14 01:40	13°☾26'29	
minimum elong	2651 Jun 24 21:37	3°☾23'30	7°26'19	opposition	2660 Jan 03 15:52	12°☾24'10	-5°-12'-35
max. Earth dist.	2651 Jun 23 15:56	3°☾21'45	46.93850 AU	min. Earth dist.	2660 Jan 05 04:12	12°☾22'20	43.42439 AU
retrograde	2651 Oct 05 04:21	4°☾56'25		direct	2660 Mar 25 03:47	11°☾21'30	
opposition	2651 Dec 26 09:31	3°☾55'19	-7°-37'-31	max. Earth dist.	2660 Jul 02 07:46	12°☾53'28	45.32063 AU
min. Earth dist.	2651 Dec 27 12:59	3°☾53'58	44.87393 AU				
direct	2652 Mar 17 00:44	2°☾54'12		conjunction	2660 Jul 04 01:07	12°☾55'59	-4°-49'-37
max. Earth dist.	2652 Jun 23 22:57	4°☾23'40	46.77630 AU	minimum elong	2660 Jul 04 01:14	12°☾56'00	4°49'38
				retrograde	2660 Oct 14 10:50	14°☾32'04	
conjunction	2652 Jun 25 05:07	4°☾25'27	-7°-9'-53	opposition	2661 Jan 03 23:25	13°☾29'33	-4°-53'-12
minimum elong	2652 Jun 25 05:16	4°☾25'28	7°09'53	min. Earth dist.	2661 Jan 05 12:23	13°☾27'41	43.22886 AU
retrograde	2652 Oct 05 13:52	5°☾58'43		direct	2661 Mar 26 11:12	12°☾26'41	
opposition	2652 Dec 26 15:46	4°☾57'31	-7°-20'-20	max. Earth dist.	2661 Jul 03 16:18	13°☾59'03	45.12493 AU
min. Earth dist.	2652 Dec 27 19:36	4°☾56'08	44.70812 AU				
direct	2653 Mar 18 04:56	3°☾56'15		conjunction	2661 Jul 05 10:30	14°☾01'38	-4°-30'-54
max. Earth dist.	2653 Jun 25 04:19	5°☾25'57	46.60933 AU	minimum elong	2661 Jul 05 10:37	14°☾01'39	4°30'56
				retrograde	2661 Oct 15 16:53	15°☾38'08	
conjunction	2653 Jun 26 13:06	5°☾27'53	-6°-53'-13	opposition	2662 Jan 05 07:09	14°☾35'27	-4°-33'-33
minimum elong	2653 Jun 26 13:15	5°☾27'54	6°53'15	min. Earth dist.	2662 Jan 06 21:35	14°☾33'30	43.03121 AU
retrograde	2653 Oct 06 23:56	7°☾01'29		direct	2662 Mar 27 21:42	13°☾32'22	
opposition	2653 Dec 27 22:12	6°☾00'10	-7°-2'-53	max. Earth dist.	2662 Jul 05 01:25	15°☾05'12	44.92720 AU
min. Earth dist.	2653 Dec 29 04:16	5°☾58'41	44.53748 AU				
direct	2654 Mar 19 08:52	4°☾58'45		conjunction	2662 Jul 06 20:05	15°☾07'50	-4°-11'-55
max. Earth dist.	2654 Jun 26 11:56	6°☾28'47	46.43736 AU	minimum elong	2662 Jul 06 20:12	15°☾07'50	4°11'57
				retrograde	2662 Oct 17 01:40	16°☾44'46	
conjunction	2654 Jun 27 21:25	6°☾30'46	-6°-36'-20	opposition	2663 Jan 06 15:04	15°☾41'56	-4°-13'-36
minimum elong	2654 Jun 27 21:33	6°☾30'47	6°36'20	min. Earth dist.	2663 Jan 08 05:28	15°☾39'59	42.83136 AU
retrograde	2654 Oct 08 06:52	8°☾04'41		direct	2663 Mar 29 05:45	14°☾38'39	
opposition	2654 Dec 29 04:50	7°☾03'14	-6°-45'-10	max. Earth dist.	2663 Jul 06 09:05	16°☾11'52	44.72682 AU
min. Earth dist.	2654 Dec 30 11:59	7°☾01'42	44.36175 AU				
direct	2655 Mar 20 17:20	6°☾01'39		conjunction	2663 Jul 08 05:43	16°☾14'38	-3°-52'-40
max. Earth dist.	2655 Jun 27 17:57	7°☾31'55	46.26055 AU	minimum elong	2663 Jul 08 05:49	16°☾14'38	3°52'41
				retrograde	2663 Oct 18 13:16	17°☾52'03	
conjunction	2655 Jun 29 05:32	7°☾34'03	-6°-19'-11	opposition	2664 Jan 07 23:20	16°☾49'02	-3°-53'-22
minimum elong	2655 Jun 29 05:41	7°☾34'04	6°19'13	min. Earth dist.	2664 Jan 09 15:45	16°☾46'59	42.62872 AU
retrograde	2655 Oct 09 13:52	9°☾08'17		direct	2664 Mar 29 11:00	15°☾45'33	
opposition	2655 Dec 30 11:33	8°☾06'41	-6°-27'-12	max. Earth dist.	2664 Jul 06 19:00	17°☾19'17	44.52329 AU
min. Earth dist.	2655 Dec 31 19:37	8°☾05'06	44.18145 AU				
direct	2656 Mar 21 01:43	7°☾04'54		conjunction	2664 Jul 08 15:53	17°☾22'04	-3°-33'-9
max. Earth dist.	2656 Jun 28 01:03	8°☾35'29	46.07920 AU	minimum elong	2664 Jul 08 15:59	17°☾22'05	3°33'11
				retrograde	2664 Oct 19 00:07	18°☾59'59	

opposition	2665 Jan 08 07:41	17°56'48	-3°-32'-51	max. Earth dist.	2673 Jul 17 14:23	27°55'16	42.53085 AU
min. Earth dist.	2665 Jan 10 00:44	17°55'42	42.42254 AU				
direct	2665 Mar 30 19:18	16°53'05		conjunction	2673 Jul 19 22:53	27°55'57	0°-25'-49
max. Earth dist.	2665 Jul 08 03:00	18°52'13	44.31592 AU	minimum elong	2673 Jul 19 22:53	27°55'57	0°25'50
				retrograde	2673 Oct 30 06:25	29°54'05	
conjunction	2665 Jul 10 02:15	18°53'10	-3°-13'-23	opposition	2674 Jan 18 23:11	28°53'37	0°-15'-31
minimum elong	2665 Jul 10 02:20	18°53'10	3°13'23	min. Earth dist.	2674 Jan 21 01:50	28°53'25	40.41362 AU
retrograde	2665 Oct 20 12:31	20°50'34		direct	2674 Apr 10 09:58	27°52'24	
opposition	2666 Jan 09 16:25	19°50'11	-3°-12'-3	max. Earth dist.	2674 Jul 19 03:27	29°50'35	42.29854 AU
min. Earth dist.	2666 Jan 11 10:47	19°50'01	42.21238 AU				
direct	2666 Apr 01 03:23	18°50'14		conjunction	2674 Jul 21 11:52	29°52'17	0°-3'-45
max. Earth dist.	2666 Jul 09 12:38	19°53'52	44.10416 AU	minimum elong	2674 Jul 21 11:52	29°52'17	0°03'47
				behind sun begin	2674 Jul 21 05:24	29°51'53	
conjunction	2666 Jul 11 13:00	19°53'54	-2°-53'-21	behind sun end	2674 Jul 21 18:19	29°52'41	
minimum elong	2666 Jul 11 13:05	19°53'54	2°53'22		2674 Aug 21 21:50	0°0	
retrograde	2666 Oct 21 22:00	21°51'48		asc. node	2674 Sep 20 10:18	0°03'52	
opposition	2667 Jan 11 01:24	20°51'43	-2°-50'-59	retrograde	2674 Oct 31 19:22	0°05'55	
min. Earth dist.	2667 Jan 12 21:34	20°51'56	41.99785 AU		2675 Jan 12 22:36	30°05	
direct	2667 Apr 02 13:39	19°51'00		opposition	2675 Jan 20 10:18	29°50'25	0°07'48
max. Earth dist.	2667 Jul 10 22:19	20°54'07	43.88834 AU	min. Earth dist.	2675 Jan 22 12:49	29°54'43	40.18050 AU
				direct	2675 Apr 11 20:17	28°54'56	
conjunction	2667 Jul 12 23:54	20°54'14	-2°-33'-3		2675 Jul 05 10:10	0°0	
minimum elong	2667 Jul 12 23:58	20°54'15	2°33'03	max. Earth dist.	2675 Jul 20 14:40	0°02'34	42.06462 AU
retrograde	2667 Oct 23 07:08	22°52'40					
opposition	2668 Jan 12 10:32	21°52'51	-2°-29'-37	conjunction	2675 Jul 23 01:07	0°02'35	0°18'41
min. Earth dist.	2668 Jan 14 07:00	21°52'33	41.77944 AU	minimum elong	2675 Jul 23 01:06	0°02'35	0°18'41
direct	2668 Apr 02 23:44	20°51'22		retrograde	2675 Nov 02 12:33	2°01'56	
max. Earth dist.	2668 Jul 11 07:14	21°54'55	43.66859 AU	opposition	2676 Jan 21 21:51	1°00'13	0°31'25
				min. Earth dist.	2676 Jan 24 01:51	1°00'25	39.94568 AU
conjunction	2668 Jul 13 10:57	21°55'11	-2°-12'-30		2676 Apr 05 11:28	30°05	
minimum elong	2668 Jul 13 11:01	21°55'11	2°12'31	direct	2676 Apr 12 03:58	29°59'26	
retrograde	2668 Oct 23 18:40	23°53'09			2676 Apr 18 23:36	0°0	
opposition	2669 Jan 12 20:03	22°53'40	-2°-7'-59	max. Earth dist.	2676 Jul 21 04:15	1°04'01	41.82843 AU
min. Earth dist.	2669 Jan 14 18:35	22°53'40	41.55745 AU				
direct	2669 Apr 04 07:31	21°52'19		conjunction	2676 Jul 23 14:53	1°04'35	0°41'17
max. Earth dist.	2669 Jul 12 18:41	23°50'27	43.44551 AU	minimum elong	2676 Jul 23 14:52	1°04'35	0°41'17
				retrograde	2676 Nov 03 03:13	3°02'00	
conjunction	2669 Jul 14 22:30	23°50'45	-1°-51'-41	opposition	2677 Jan 22 09:51	2°02'31	0°55'17
minimum elong	2669 Jul 14 22:33	23°50'46	1°51'41	min. Earth dist.	2677 Jan 24 14:53	2°02'09	39.70823 AU
retrograde	2669 Oct 25 06:50	24°54'16		direct	2677 Apr 13 15:33	1°01'57	
opposition	2670 Jan 14 05:35	23°54'58	-1°-46'-4	max. Earth dist.	2677 Jul 22 16:42	2°05'13	41.58938 AU
min. Earth dist.	2670 Jan 16 04:24	23°54'31	41.33244 AU				
direct	2670 Apr 05 15:55	22°53'54		conjunction	2677 Jul 25 05:06	3°01'15	1°04'08
max. Earth dist.	2670 Jul 14 04:15	24°51'31	43.21966 AU	minimum elong	2677 Jul 25 05:04	3°01'15	1°04'08
				retrograde	2677 Nov 04 18:15	4°04'04	
conjunction	2670 Jul 16 10:10	24°51'58	-1°-30'-36	opposition	2678 Jan 23 22:04	3°04'50	1°19'26
minimum elong	2670 Jul 16 10:12	24°51'58	1°30'38	min. Earth dist.	2678 Jan 26 03:55	3°03'75	39.46781 AU
retrograde	2670 Oct 26 20:22	26°50'02		direct	2678 Apr 15 04:29	2°03'32	
opposition	2671 Jan 15 15:32	24°55'30	-1°-23'-51	max. Earth dist.	2678 Jul 24 05:46	4°01'52	41.34688 AU
min. Earth dist.	2671 Jan 17 15:37	24°55'58	41.10513 AU				
direct	2671 Apr 07 00:06	23°55'10		conjunction	2678 Jul 26 19:49	4°01'36	1°27'13
max. Earth dist.	2671 Jul 15 15:49	25°52'23	42.99156 AU	minimum elong	2678 Jul 26 19:47	4°01'36	1°27'13
				retrograde	2678 Nov 06 07:04	6°00'10	
conjunction	2671 Jul 17 22:02	25°53'15	-1°-9'-16	opposition	2679 Jan 25 10:58	4°05'39	1°43'50
minimum elong	2671 Jul 17 22:04	25°53'15	1°09'16	min. Earth dist.	2679 Jan 27 18:45	4°05'36	39.22399 AU
retrograde	2671 Oct 28 06:54	27°51'32		direct	2679 Apr 16 18:43	3°05'15	
opposition	2672 Jan 17 01:50	26°50'44	-1°-1'-21	max. Earth dist.	2679 Jul 25 20:09	5°03'43	41.10113 AU
min. Earth dist.	2672 Jan 19 02:49	26°50'09	40.87590 AU				
direct	2672 Apr 07 12:44	25°50'30		conjunction	2679 Jul 28 10:42	5°03'54	1°50'32
max. Earth dist.	2672 Jul 16 03:10	26°54'05	42.76192 AU	minimum elong	2679 Jul 28 10:39	5°03'54	1°50'32
				retrograde	2679 Nov 07 20:41	7°02'14	
conjunction	2672 Jul 18 10:15	26°54'30	0°-47'-40	opposition	2680 Jan 27 00:04	6°01'25	2°08'30
minimum elong	2672 Jul 18 10:16	26°54'30	0°47'42	min. Earth dist.	2680 Jan 29 07:56	6°01'62	38.97706 AU
retrograde	2672 Oct 28 18:30	28°52'47		direct	2680 Apr 17 07:58	5°01'19	
opposition	2673 Jan 17 12:13	27°52'14	0°-38'-35	max. Earth dist.	2680 Jul 26 09:15	6°05'43	40.85225 AU
min. Earth dist.	2673 Jan 19 13:11	27°51'09	40.64539 AU				
direct	2673 Apr 09 00:21	26°51'49		conjunction	2680 Jul 29 02:05	6°05'09	2°14'05

minimum elong	2680 Jul 29 02:02	6°Ω59'09	2°14'05	conjunction	2688 Aug 09 21:15	18°Ω18'59	5°29'22
retrograde	2680 Nov 08 12:45	8°Ω47'16		minimum elong	2688 Aug 09 21:04	18°Ω18'58	5°29'22
opposition	2681 Jan 27 13:32	7°Ω40'07	2°33'25	retrograde	2688 Nov 20 12:48	20°Ω14'21	
min. Earth dist.	2681 Jan 29 23:24	7°Ω36'55	38.72744 AU	opposition	2689 Feb 07 17:36	19°Ω04'31	6°00'22
direct	2681 Apr 18 19:01	6°Ω31'38		min. Earth dist.	2689 Feb 10 08:37	19°Ω00'52	36.69430 AU
max. Earth dist.	2681 Jul 28 01:03	8°Ω15'52	40.60079 AU	direct	2689 Apr 29 17:40	17°Ω52'55	
				max. Earth dist.	2689 Aug 08 17:30	19°Ω44'36	38.55619 AU
conjunction	2681 Jul 30 18:02	8°Ω20'20	2°37'51				
minimum elong	2681 Jul 30 17:57	8°Ω20'20	2°37'51	conjunction	2689 Aug 11 17:05	19°Ω49'51	5°54'26
retrograde	2681 Nov 10 04:56	10°Ω09'15		minimum elong	2689 Aug 11 16:53	19°Ω49'50	5°54'26
opposition	2682 Jan 29 03:26	9°Ω01'45	2°58'34	retrograde	2689 Nov 22 11:33	21°Ω46'17	
min. Earth dist.	2682 Jan 31 13:43	8°Ω58'31	38.47551 AU	opposition	2690 Feb 09 11:27	20°Ω36'06	6°27'00
direct	2682 Apr 20 08:38	7°Ω52'53		min. Earth dist.	2690 Feb 12 02:50	20°Ω32'25	36.43790 AU
max. Earth dist.	2682 Jul 29 15:22	9°Ω37'51	40.34734 AU	direct	2690 May 01 11:17	19°Ω24'06	
				max. Earth dist.	2690 Aug 10 12:48	21°Ω16'51	38.29728 AU
conjunction	2682 Aug 01 10:06	9°Ω42'29	3°01'50				
minimum elong	2682 Aug 01 10:01	9°Ω42'28	3°01'50	conjunction	2690 Aug 13 13:31	21°Ω22'14	6°19'37
retrograde	2682 Nov 11 23:53	11°Ω32'12		minimum elong	2690 Aug 13 13:18	21°Ω22'13	6°19'37
opposition	2683 Jan 30 17:41	10°Ω24'21	3°23'58	retrograde	2690 Nov 24 07:02	23°Ω19'44	
min. Earth dist.	2683 Feb 02 04:43	10°Ω21'04	38.22213 AU	opposition	2691 Feb 11 06:03	22°Ω09'12	6°53'44
direct	2683 Apr 21 21:53	9°Ω15'05		min. Earth dist.	2691 Feb 13 23:06	22°Ω05'23	36.18002 AU
max. Earth dist.	2683 Jul 31 07:36	11°Ω00'56	40.09246 AU	direct	2691 May 03 05:42	20°Ω56'47	
				max. Earth dist.	2691 Aug 12 09:36	22°Ω50'39	38.03706 AU
conjunction	2683 Aug 03 02:47	11°Ω05'37	3°26'00				
minimum elong	2683 Aug 03 02:41	11°Ω05'36	3°26'00	conjunction	2691 Aug 15 10:32	22°Ω56'06	6°44'52
retrograde	2683 Nov 13 16:04	12°Ω56'11		minimum elong	2691 Aug 15 10:19	22°Ω56'05	6°44'52
opposition	2684 Feb 01 08:29	11°Ω47'59	3°49'34	retrograde	2691 Nov 26 03:18	24°Ω54'41	
min. Earth dist.	2684 Feb 03 20:39	11°Ω44'36	37.96779 AU	opposition	2692 Feb 13 01:02	23°Ω43'47	7°20'34
direct	2684 Apr 22 12:58	10°Ω38'18		min. Earth dist.	2692 Feb 15 17:56	23°Ω39'57	35.92100 AU
max. Earth dist.	2684 Aug 01 00:10	12°Ω25'02	39.83702 AU	direct	2692 May 04 01:09	22°Ω30'55	
				max. Earth dist.	2692 Aug 13 05:11	24°Ω25'48	37.77564 AU
conjunction	2684 Aug 03 19:45	12°Ω29'48	3°50'22				
minimum elong	2684 Aug 03 19:38	12°Ω29'47	3°50'22	conjunction	2692 Aug 16 08:06	24°Ω31'27	7°10'11
retrograde	2684 Nov 14 08:27	14°Ω21'14		minimum elong	2692 Aug 16 07:52	24°Ω31'26	7°10'12
opposition	2685 Feb 01 23:39	13°Ω12'42	4°15'23	retrograde	2692 Nov 27 00:59	26°Ω31'09	
min. Earth dist.	2685 Feb 04 11:32	13°Ω09'18	37.71318 AU	opposition	2693 Feb 13 20:45	25°Ω19'51	7°47'29
direct	2685 Apr 24 05:24	12°Ω02'37		min. Earth dist.	2693 Feb 16 15:20	25°Ω15'53	35.66116 AU
max. Earth dist.	2685 Aug 02 16:17	13°Ω50'13	39.58124 AU	direct	2693 May 05 17:29	24°Ω06'31	
				max. Earth dist.	2693 Aug 15 03:52	26°Ω02'36	37.51352 AU
conjunction	2685 Aug 05 13:22	13°Ω55'07	4°14'54				
minimum elong	2685 Aug 05 13:14	13°Ω55'07	4°14'53	conjunction	2693 Aug 18 06:26	26°Ω08'16	7°35'32
	2685 Sep 15 00:47	15°Ω		minimum elong	2693 Aug 18 06:11	26°Ω08'15	7°35'32
retrograde	2685 Nov 16 01:28	15°Ω47'29		retrograde	2693 Nov 28 22:22	28°Ω09'06	
	2686 Jan 18 16:53	15°RΩ		opposition	2694 Feb 15 16:56	26°Ω57'23	8°14'26
opposition	2686 Feb 03 15:22	14°Ω38'36	4°41'23	min. Earth dist.	2694 Feb 18 11:27	26°Ω53'24	35.40098 AU
min. Earth dist.	2686 Feb 06 04:44	14°Ω35'07	37.45860 AU	direct	2694 May 07 13:25	25°Ω43'35	
direct	2686 Apr 25 19:24	13°Ω28'08		max. Earth dist.	2694 Aug 17 01:06	27°Ω40'45	37.25141 AU
	2686 Jul 25 14:28	15°Ω					
max. Earth dist.	2686 Aug 04 10:57	15°Ω16'47	39.32557 AU	conjunction	2694 Aug 20 05:09	27°Ω46'35	8°00'54
				minimum elong	2694 Aug 20 04:53	27°Ω46'34	8°00'54
conjunction	2686 Aug 07 07:32	15°Ω21'41	4°39'35	retrograde	2694 Nov 30 23:32	29°Ω48'34	
minimum elong	2686 Aug 07 07:23	15°Ω21'40	4°39'35	opposition	2695 Feb 17 13:49	28°Ω36'25	8°41'24
retrograde	2686 Nov 17 19:12	17°Ω15'01		min. Earth dist.	2695 Feb 20 08:58	28°Ω32'22	35.14139 AU
opposition	2687 Feb 05 07:36	16°Ω05'49	5°07'33	direct	2695 May 09 08:19	27°Ω22'07	
min. Earth dist.	2687 Feb 07 20:35	16°Ω02'19	37.20414 AU	max. Earth dist.	2695 Aug 19 00:47	29°Ω20'33	36.98995 AU
	2687 Apr 07 18:58	15°RΩ					
direct	2687 Apr 27 10:20	14°Ω54'58		conjunction	2695 Aug 22 04:27	29°Ω26'24	8°26'13
	2687 May 16 23:26	15°Ω		minimum elong	2695 Aug 22 04:11	29°Ω26'23	8°26'12
max. Earth dist.	2687 Aug 06 03:44	16°Ω44'33	39.06983 AU		2695 Sep 09 10:39	0°mp	
				retrograde	2695 Dec 02 23:33	1°mp29'33	
conjunction	2687 Aug 09 01:55	16°Ω49'36	5°04'24	opposition	2696 Feb 19 11:25	0°mp16'58	9°08'19
minimum elong	2687 Aug 09 01:46	16°Ω49'36	5°04'23	min. Earth dist.	2696 Feb 22 07:07	0°mp12'52	34.88292 AU
retrograde	2687 Nov 19 16:10	18°Ω43'57			2696 Mar 02 05:11	30°RΩ	
opposition	2688 Feb 07 00:22	17°Ω34'26	5°33'53	direct	2696 May 10 05:47	29°Ω02'11	
min. Earth dist.	2688 Feb 09 14:32	17°Ω30'51	36.94961 AU		2696 Jul 16 01:02	0°mp	
direct	2688 Apr 28 00:19	16°Ω23'13		max. Earth dist.	2696 Aug 20 00:20	1°mp01'50	36.73008 AU
max. Earth dist.	2688 Aug 06 23:04	18°Ω13'53	38.81351 AU				

conjunction	2696 Aug 23 04:23	1° \mathring{M} 07'47	8°51'28	opposition	2705 Mar 07 22:28	16° \mathring{M} 42'53	13°01'56
minimum elong	2696 Aug 23 04:06	1° \mathring{M} 07'46	8°51'28	min. Earth dist.	2705 Mar 10 19:23	16° \mathring{M} 38'27	32.66409 AU
retrograde	2696 Dec 04 01:26	3° \mathring{M} 12'07		direct	2705 May 27 08:41	15° \mathring{M} 23'54	
opposition	2697 Feb 20 09:24	1° \mathring{M} 59'06	9°35'10	max. Earth dist.	2705 Sep 07 09:47	17° \mathring{M} 36'06	34.49648 AU
min. Earth dist.	2697 Feb 23 04:35	1° \mathring{M} 55'01	34.62652 AU				
direct	2697 May 12 03:57	0° \mathring{M} 43'50		conjunction	2705 Sep 10 13:59	17° \mathring{M} 42'36	12°28'38
max. Earth dist.	2697 Aug 22 00:38	2° \mathring{M} 44'45	36.47226 AU	minimum elong	2705 Sep 10 13:37	17° \mathring{M} 42'35	12°28'38
				retrograde	2705 Dec 22 18:29	19° \mathring{M} 58'54	
conjunction	2697 Aug 25 05:09	2° \mathring{M} 50'47	9°16'36	opposition	2706 Mar 10 03:43	18° \mathring{M} 42'13	13°26'04
minimum elong	2697 Aug 25 04:51	2° \mathring{M} 50'46	9°16'35	min. Earth dist.	2706 Mar 12 23:30	18° \mathring{M} 37'49	32.42914 AU
retrograde	2697 Dec 06 02:20	4° \mathring{M} 56'21		direct	2706 May 29 14:33	17° \mathring{M} 22'44	
opposition	2698 Feb 22 08:27	3° \mathring{M} 42'55	10°01'53	max. Earth dist.	2706 Sep 09 16:45	19° \mathring{M} 36'19	34.26008 AU
min. Earth dist.	2698 Feb 25 04:29	3° \mathring{M} 38'44	34.37259 AU				
direct	2698 May 14 02:45	2° \mathring{M} 27'10		conjunction	2706 Sep 12 21:30	19° \mathring{M} 42'57	12°50'49
max. Earth dist.	2698 Aug 24 02:48	4° \mathring{M} 29'28	36.21721 AU	minimum elong	2706 Sep 12 21:07	19° \mathring{M} 42'55	12°50'49
				retrograde	2706 Dec 25 01:59	22° \mathring{M} 00'38	
conjunction	2698 Aug 27 06:25	4° \mathring{M} 35'30	9°41'34	opposition	2707 Mar 12 09:54	20° \mathring{M} 43'30	13°49'37
minimum elong	2698 Aug 27 06:06	4° \mathring{M} 35'29	9°41'34	min. Earth dist.	2707 Mar 15 06:21	20° \mathring{M} 39'02	32.19773 AU
retrograde	2698 Dec 08 04:29	6° \mathring{M} 42'20		direct	2707 May 31 18:32	19° \mathring{M} 23'32	
opposition	2699 Feb 24 08:01	5° \mathring{M} 28'30	10°28'27	max. Earth dist.	2707 Sep 12 02:52	21° \mathring{M} 38'43	34.02764 AU
min. Earth dist.	2699 Feb 27 03:01	5° \mathring{M} 24'21	34.12155 AU				
direct	2699 May 16 02:34	4° \mathring{M} 12'18		conjunction	2707 Sep 15 05:55	21° \mathring{M} 45'16	13°12'24
max. Earth dist.	2699 Aug 26 03:53	6° \mathring{M} 15'53	35.96493 AU	minimum elong	2707 Sep 15 05:33	21° \mathring{M} 45'14	13°12'24
				retrograde	2707 Dec 27 09:51	24° \mathring{M} 04'20	
conjunction	2699 Aug 29 08:28	6° \mathring{M} 22'03	10°06'21	opposition	2708 Mar 13 16:45	22° \mathring{M} 46'46	14°12'30
minimum elong	2699 Aug 29 08:09	6° \mathring{M} 22'02	10°06'20	min. Earth dist.	2708 Mar 16 12:03	22° \mathring{M} 42'21	31.97059 AU
retrograde	2699 Dec 10 06:47	8° \mathring{M} 30'11		direct	2708 Jun 02 00:35	21° \mathring{M} 26'19	
opposition	2700 Feb 26 08:21	7° \mathring{M} 15'58	10°54'47	max. Earth dist.	2708 Sep 13 11:31	23° \mathring{M} 42'56	33.79993 AU
min. Earth dist.	2700 Mar 01 04:19	7° \mathring{M} 11'44	33.87338 AU				
direct	2700 May 17 23:48	5° \mathring{M} 59'19		conjunction	2708 Sep 16 15:01	23° \mathring{M} 49'35	13°33'17
max. Earth dist.	2700 Aug 28 07:52	8° \mathring{M} 04'22	35.71523 AU	minimum elong	2708 Sep 16 14:37	23° \mathring{M} 49'33	13°33'18
				retrograde	2708 Dec 28 20:13	26° \mathring{M} 10'03	
conjunction	2700 Aug 31 11:26	8° \mathring{M} 10'31	10°30'53	opposition	2709 Mar 16 00:33	24° \mathring{M} 52'03	14°34'38
minimum elong	2700 Aug 31 11:05	8° \mathring{M} 10'29	10°30'54	min. Earth dist.	2709 Mar 18 19:37	24° \mathring{M} 47'37	31.74868 AU
retrograde	2700 Dec 12 08:47	10° \mathring{M} 19'59		direct	2709 Jun 04 05:15	23° \mathring{M} 31'07	
opposition	2701 Feb 28 09:32	9° \mathring{M} 05'23	11°20'53	max. Earth dist.	2709 Sep 15 23:29	25° \mathring{M} 49'22	33.57773 AU
min. Earth dist.	2701 Mar 03 05:06	9° \mathring{M} 01'08	33.62753 AU				
direct	2701 May 20 00:07	7° \mathring{M} 48'17		conjunction	2709 Sep 19 01:01	25° \mathring{M} 55'54	13°53'25
max. Earth dist.	2701 Aug 30 10:22	9° \mathring{M} 54'39	35.46763 AU	minimum elong	2709 Sep 19 00:39	25° \mathring{M} 55'52	13°53'25
				retrograde	2709 Dec 31 05:12	28° \mathring{M} 17'46	
conjunction	2701 Sep 02 15:06	10° \mathring{M} 00'58	10°55'09	opposition	2710 Mar 18 09:19	26° \mathring{M} 59'22	14°55'54
minimum elong	2701 Sep 02 14:45	10° \mathring{M} 00'56	10°55'09	min. Earth dist.	2710 Mar 21 03:26	26° \mathring{M} 54'58	31.53255 AU
retrograde	2701 Dec 14 14:31	12° \mathring{M} 11'47		direct	2710 Jun 06 13:14	25° \mathring{M} 38'00	
opposition	2702 Mar 02 11:27	10° \mathring{M} 56'46	11°46'42	max. Earth dist.	2710 Sep 18 10:28	27° \mathring{M} 57'45	33.36194 AU
min. Earth dist.	2702 Mar 05 07:22	10° \mathring{M} 52'29	33.38379 AU				
direct	2702 May 21 23:18	9° \mathring{M} 39'13		conjunction	2710 Sep 21 11:39	28° \mathring{M} 04'19	14°12'41
max. Earth dist.	2702 Sep 01 15:33	11° \mathring{M} 47'04	35.22180 AU	minimum elong	2710 Sep 21 11:16	28° \mathring{M} 04'17	14°12'41
					2710 Nov 22 12:14	0° \mathring{M}	
conjunction	2702 Sep 04 19:44	11° \mathring{M} 53'24	11°19'07	retrograde	2711 Jan 02 18:06	0° \mathring{M} 27'36	
minimum elong	2702 Sep 04 19:22	11° \mathring{M} 53'22	11°19'07		2711 Feb 14 01:10	30° \mathring{R} \mathring{M}	
retrograde	2702 Dec 16 19:09	14° \mathring{M} 05'35		opposition	2711 Mar 20 18:52	29° \mathring{M} 08'48	15°16'14
opposition	2703 Mar 04 14:25	12° \mathring{M} 50'10	12°12'11	min. Earth dist.	2711 Mar 23 11:34	29° \mathring{M} 04'29	31.32307 AU
min. Earth dist.	2703 Mar 07 10:48	12° \mathring{M} 45'49	33.14182 AU	direct	2711 Jun 08 21:37	27° \mathring{M} 47'01	
direct	2703 May 24 00:35	11° \mathring{M} 32'09			2711 Sep 17 02:35	0° \mathring{M}	
max. Earth dist.	2703 Sep 03 20:20	13° \mathring{M} 41'24	34.97790 AU	max. Earth dist.	2711 Sep 20 23:43	0° \mathring{M} 08'25	33.15281 AU
conjunction	2703 Sep 07 00:51	13° \mathring{M} 47'49	11°42'43	conjunction	2711 Sep 23 23:09	0° \mathring{M} 14'53	14°31'01
minimum elong	2703 Sep 07 00:30	13° \mathring{M} 47'47	11°42'43	minimum elong	2711 Sep 23 22:48	0° \mathring{M} 14'51	14°31'01
retrograde	2703 Dec 19 03:14	16° \mathring{M} 01'23		retrograde	2712 Jan 05 05:44	2° \mathring{M} 39'34	
opposition	2704 Mar 05 18:01	14° \mathring{M} 45'32	12°37'17	opposition	2712 Mar 22 05:25	1° \mathring{M} 20'25	15°35'33
min. Earth dist.	2704 Mar 08 13:54	14° \mathring{M} 41'12	32.90186 AU	min. Earth dist.	2712 Mar 24 21:52	1° \mathring{M} 16'05	31.12013 AU
direct	2704 May 25 04:38	13° \mathring{M} 27'02			2712 May 30 18:36	30° \mathring{R} \mathring{M}	
max. Earth dist.	2704 Sep 05 02:12	15° \mathring{M} 37'44	34.73590 AU	direct	2712 Jun 10 06:09	29° \mathring{M} 58'15	
					2712 Jun 20 19:48	0° \mathring{M}	
conjunction	2704 Sep 08 07:04	15° \mathring{M} 44'14	12°05'55	max. Earth dist.	2712 Sep 22 13:10	2° \mathring{M} 21'12	32.95045 AU
minimum elong	2704 Sep 08 06:41	15° \mathring{M} 44'12	12°05'54				
retrograde	2704 Dec 20 10:33	17° \mathring{M} 59'09		conjunction	2712 Sep 25 11:28	2° \mathring{M} 27'38	14°48'21

minimum elong	2712 Sep 25 11:06	2° 2 27'36	14°48'21	min. Earth dist.	2721 Apr 14 23:56	22° 2 31'22	29.58363 AU
retrograde	2713 Jan 06 20:58	4° 2 53'43		direct	2721 Jul 01 12:12	21° 2 09'50	
opposition	2713 Mar 24 16:37	3° 2 34'14	15°53'47	max. Earth dist.	2721 Oct 15 03:40	23° 2 45'07	31.42853 AU
min. Earth dist.	2713 Mar 27 07:18	3° 2 30'00	30.92372 AU				
direct	2713 Jun 12 17:50	2° 2 11'42		conjunction	2721 Oct 17 11:44	23° 2 50'38	16°28'14
max. Earth dist.	2713 Sep 25 03:18	4° 2 36'12	32.75440 AU	minimum elong	2721 Oct 17 11:36	23° 2 50'37	16°28'13
				retrograde	2722 Jan 29 01:56	26° 2 27'07	
conjunction	2713 Sep 28 00:43	4° 2 42'36	15°04'38	opposition	2722 Apr 15 13:11	25° 2 04'46	17°36'26
minimum elong	2713 Sep 28 00:24	4° 2 42'34	15°04'37	min. Earth dist.	2722 Apr 17 15:24	25° 2 01'15	29.45187 AU
retrograde	2714 Jan 09 11:56	7° 2 10'04		direct	2722 Jul 04 07:35	23° 2 39'15	
opposition	2714 Mar 27 05:02	5° 2 50'15	16°10'51	max. Earth dist.	2722 Oct 18 01:25	26° 2 15'43	31.30114 AU
min. Earth dist.	2714 Mar 29 19:48	5° 2 45'59	30.73347 AU				
direct	2714 Jun 15 05:13	4° 2 27'21		conjunction	2722 Oct 20 06:31	26° 2 20'57	16°31'42
max. Earth dist.	2714 Sep 27 18:58	6° 2 53'25	32.56467 AU	minimum elong	2722 Oct 20 06:24	26° 2 20'56	16°31'42
				retrograde	2723 Jan 31 20:13	28° 2 58'18	
conjunction	2714 Sep 30 14:34	6° 2 59'43	15°19'47	opposition	2723 Apr 18 08:28	27° 2 35'42	17°39'29
minimum elong	2714 Sep 30 14:14	6° 2 59'41	15°19'47	min. Earth dist.	2723 Apr 20 09:17	27° 2 32'16	29.33046 AU
retrograde	2715 Jan 12 03:12	9° 2 28'31		direct	2723 Jul 07 01:50	26° 2 09'59	
opposition	2715 Mar 29 18:17	8° 2 08'22	16°26'42	max. Earth dist.	2723 Oct 20 23:24	28° 2 47'31	31.18483 AU
min. Earth dist.	2715 Apr 01 07:02	8° 2 04'14	30.54921 AU				
direct	2715 Jun 17 18:59	6° 2 45'08		conjunction	2723 Oct 23 01:46	28° 2 52'31	16°33'22
max. Earth dist.	2715 Sep 30 10:08	9° 2 12'35	32.38099 AU	minimum elong	2723 Oct 23 01:42	28° 2 52'30	16°33'21
					2723 Nov 21 07:17	0° 2	
conjunction	2715 Oct 03 05:21	9° 2 18'54	15°33'44	retrograde	2724 Feb 03 16:54	1° 2 30'38	
minimum elong	2715 Oct 03 05:04	9° 2 18'52	15°33'44	opposition	2724 Apr 20 04:00	0° 2 07'52	17°40'34
retrograde	2716 Jan 14 18:56	11° 2 48'59		min. Earth dist.	2724 Apr 22 01:19	0° 2 04'41	29.21981 AU
opposition	2716 Mar 31 08:18	10° 2 28'30	16°41'14		2724 Apr 24 19:48	30° 2 4	
min. Earth dist.	2716 Apr 02 20:58	10° 2 24'21	30.37101 AU	direct	2724 Jul 08 22:04	28° 2 42'00	
direct	2716 Jun 19 06:53	9° 2 04'54			2724 Sep 17 07:05	0° 2	
max. Earth dist.	2716 Oct 02 04:04	11° 2 33'54	32.20366 AU	max. Earth dist.	2724 Oct 22 21:36	1° 2 20'31	31.07954 AU
conjunction	2716 Oct 04 20:59	11° 2 40'03	15°46'26	conjunction	2724 Oct 24 21:31	1° 2 25'17	16°33'12
minimum elong	2716 Oct 04 20:42	11° 2 40'01	15°46'26	minimum elong	2724 Oct 24 21:29	1° 2 25'17	16°33'13
retrograde	2717 Jan 16 11:22	14° 2 11'20		retrograde	2725 Feb 05 13:25	4° 2 04'07	
opposition	2717 Apr 02 23:18	12° 2 50'33	16°54'24	opposition	2725 Apr 23 00:22	2° 2 41'13	17°39'38
min. Earth dist.	2717 Apr 05 10:16	12° 2 46'29	30.19892 AU	min. Earth dist.	2725 Apr 24 20:14	2° 2 38'07	29.11990 AU
direct	2717 Jun 21 21:49	11° 2 26'36		direct	2725 Jul 11 17:18	1° 2 15'14	
max. Earth dist.	2717 Oct 04 20:36	13° 2 56'51	32.03286 AU	max. Earth dist.	2725 Oct 25 20:59	3° 2 54'44	30.98529 AU
conjunction	2717 Oct 07 13:09	14° 2 03'00	15°57'47	conjunction	2725 Oct 27 17:29	3° 2 59'11	16°31'10
minimum elong	2717 Oct 07 12:54	14° 2 02'59	15°57'47	minimum elong	2725 Oct 27 17:29	3° 2 59'11	16°31'10
retrograde	2718 Jan 19 03:58	16° 2 35'29		retrograde	2726 Feb 08 10:45	6° 2 38'39	
opposition	2718 Apr 05 15:03	15° 2 14'21	17°06'06	opposition	2726 Apr 25 21:09	5° 2 15'38	17°36'42
min. Earth dist.	2718 Apr 08 01:04	15° 2 10'20	30.03355 AU	min. Earth dist.	2726 Apr 27 13:41	5° 2 12'46	29.03042 AU
direct	2718 Jun 24 11:35	13° 2 50'03		direct	2726 Jul 14 15:31	3° 2 49'36	
max. Earth dist.	2718 Oct 07 16:15	16° 2 21'43	31.86922 AU	max. Earth dist.	2726 Oct 28 19:21	6° 2 29'50	30.90162 AU
conjunction	2718 Oct 10 06:06	16° 2 27'40	16°07'43	conjunction	2726 Oct 30 13:46	6° 2 34'05	16°27'15
minimum elong	2718 Oct 10 05:51	16° 2 27'39	16°07'44	minimum elong	2726 Oct 30 13:49	6° 2 34'06	16°27'16
retrograde	2719 Jan 21 19:23	19° 2 01'15		retrograde	2727 Feb 11 07:33	9° 2 14'05	
opposition	2719 Apr 08 07:36	17° 2 39'48	17°16'14	opposition	2727 Apr 28 18:22	7° 2 50'59	17°31'44
min. Earth dist.	2719 Apr 10 16:08	17° 2 35'52	29.87534 AU	min. Earth dist.	2727 Apr 30 09:12	7° 2 48'15	28.95125 AU
direct	2719 Jun 27 03:52	16° 2 15'09		direct	2727 Jul 17 11:10	6° 2 24'55	
max. Earth dist.	2719 Oct 10 10:26	18° 2 48'00	31.71346 AU	max. Earth dist.	2727 Oct 31 19:38	9° 2 05'57	30.82843 AU
conjunction	2719 Oct 12 23:21	18° 2 53'55	16°16'10	conjunction	2727 Nov 02 10:22	9° 2 09'51	16°21'28
minimum elong	2719 Oct 12 23:09	18° 2 53'53	16°16'09	minimum elong	2727 Nov 02 10:27	9° 2 09'51	16°21'27
retrograde	2720 Jan 24 13:56	21° 2 28'31		retrograde	2728 Feb 14 04:56	11° 2 50'15	
opposition	2720 Apr 10 00:44	20° 2 06'45	17°24'44	opposition	2728 Apr 30 15:58	10° 2 27'06	17°24'44
min. Earth dist.	2720 Apr 12 07:14	20° 2 02'57	29.72515 AU	min. Earth dist.	2728 May 02 03:56	10° 2 24'33	28.88189 AU
direct	2720 Jun 28 19:46	18° 2 41'46		direct	2728 Jul 19 09:51	9° 2 01'00	
max. Earth dist.	2720 Oct 12 07:23	21° 2 15'56	31.56619 AU	max. Earth dist.	2728 Nov 02 17:58	11° 2 42'30	30.76535 AU
conjunction	2720 Oct 14 17:23	21° 2 21'35	16°23'01	conjunction	2728 Nov 04 07:02	11° 2 46'14	16°13'48
minimum elong	2720 Oct 14 17:12	21° 2 21'34	16°23'02	minimum elong	2728 Nov 04 07:09	11° 2 46'15	16°13'48
retrograde	2721 Jan 26 06:34	23° 2 57'11		retrograde	2729 Feb 16 02:40	14° 2 26'58	
opposition	2721 Apr 12 18:38	22° 2 35'06	17°31'30	opposition	2729 May 03 13:48	13° 2 03'45	17°15'42

min. Earth dist.	2729 May 04 23:23	13°M01'22	28.82247 AU	conjunction	2736 Nov 25 00:36	2°J34'57	14°06'27
direct	2729 Jul 22 06:46	11°M37'38		minimum elong	2736 Nov 25 00:58	2°J35'00	14°06'27
max. Earth dist.	2729 Nov 05 18:45	14°M19'42	30.71250 AU	max. Earth dist.	2736 Nov 24 14:00	2°J33'53	30.65276 AU
				retrograde	2737 Mar 08 14:30	5°J14'15	
conjunction	2729 Nov 07 03:56	14°M23'04	16°04'15	opposition	2737 May 24 21:59	3°J51'11	14°52'34
minimum elong	2729 Nov 07 04:05	14°M23'05	16°04'14	min. Earth dist.	2737 May 25 06:48	3°J50'34	28.73403 AU
	2729 Nov 22 12:09	15°M		direct	2737 Aug 12 18:28	2°J25'48	
retrograde	2730 Feb 18 22:02	17°M03'58					
opposition	2730 May 06 12:03	15°M40'43	17°04'39	conjunction	2737 Nov 27 19:24	5°J08'19	13°42'49
min. Earth dist.	2730 May 07 19:09	15°M38'31	28.77286 AU	minimum elong	2737 Nov 27 19:46	5°J08'21	13°42'49
	2730 May 31 12:24	15°RM		max. Earth dist.	2737 Nov 27 12:00	5°J07'35	30.69303 AU
direct	2730 Jul 25 05:45	14°M14'38		retrograde	2738 Mar 11 09:17	7°J47'04	
	2730 Sep 15 12:56	15°M		opposition	2738 May 27 19:16	6°J24'10	14°26'26
max. Earth dist.	2730 Nov 08 17:09	16°M56'54	30.66994 AU	min. Earth dist.	2738 May 28 01:22	6°J23'44	28.77675 AU
				direct	2738 Aug 15 14:52	4°J59'02	
conjunction	2730 Nov 10 00:31	17°M00'05	15°52'50				
minimum elong	2730 Nov 10 00:43	17°M00'06	15°52'50	conjunction	2738 Nov 30 13:43	7°J40'46	13°17'41
retrograde	2731 Feb 21 19:26	19°M41'04		minimum elong	2738 Nov 30 14:06	7°J40'48	13°17'41
opposition	2731 May 09 10:13	18°M17'47	16°51'36	max. Earth dist.	2738 Nov 30 10:18	7°J40'25	30.74530 AU
min. Earth dist.	2731 May 10 14:14	18°M15'48	28.73342 AU	retrograde	2739 Mar 14 03:45	10°J18'52	
direct	2731 Jul 28 03:31	16°M51'42		opposition	2739 May 30 16:05	8°J56'10	13°58'46
				min. Earth dist.	2739 May 30 18:40	8°J55'59	28.83082 AU
conjunction	2731 Nov 12 21:19	19°M37'04	15°39'34	direct	2739 Aug 18 14:01	7°J31'19	
minimum elong	2731 Nov 12 21:32	19°M37'06	15°39'33				
max. Earth dist.	2731 Nov 11 17:57	19°M34'18	30.63788 AU	conjunction	2739 Dec 03 07:35	10°J12'11	12°51'10
retrograde	2732 Feb 24 14:41	22°M18'01		minimum elong	2739 Dec 03 07:58	10°J12'14	12°51'10
opposition	2732 May 11 08:26	20°M54'42	16°36'33	max. Earth dist.	2739 Dec 03 06:31	10°J12'05	30.80866 AU
min. Earth dist.	2732 May 12 10:25	20°M52'52	28.70430 AU	retrograde	2740 Mar 15 22:54	12°J49'35	
direct	2732 Jul 30 01:16	19°M28'39		opposition	2740 Jun 01 12:26	11°J27'05	13°29'38
				min. Earth dist.	2740 Jun 01 12:01	11°J27'06	28.89581 AU
conjunction	2732 Nov 14 17:47	22°M13'48	15°24'28	direct	2740 Aug 20 11:02	10°J02'32	
minimum elong	2732 Nov 14 18:03	22°M13'50	15°24'29				
max. Earth dist.	2732 Nov 13 16:42	22°M11'16	30.61679 AU	conjunction	2740 Dec 05 01:08	12°J42'29	12°23'23
retrograde	2733 Feb 26 10:38	24°M54'36		minimum elong	2740 Dec 05 01:32	12°J42'31	12°23'23
opposition	2733 May 14 06:38	23°M31'16	16°19'32	max. Earth dist.	2740 Dec 05 04:03	12°J42'46	30.88267 AU
min. Earth dist.	2733 May 15 04:45	23°M29'43	28.68618 AU	retrograde	2741 Mar 18 14:55	15°J19'05	
direct	2733 Aug 02 00:34	22°M05'16		opposition	2741 Jun 04 08:34	13°J56'48	12°59'11
				min. Earth dist.	2741 Jun 04 05:31	13°J57'01	28.97095 AU
conjunction	2733 Nov 17 13:58	24°M50'06	15°07'35	direct	2741 Aug 23 08:50	12°J32'35	
minimum elong	2733 Nov 17 14:15	24°M50'07	15°07'34				
max. Earth dist.	2733 Nov 16 17:00	24°M47'58	30.60712 AU	conjunction	2741 Dec 07 17:50	15°J11'30	11°54'24
retrograde	2734 Mar 01 04:50	27°M30'39		minimum elong	2741 Dec 07 18:13	15°J11'32	11°54'24
opposition	2734 May 17 04:55	26°M07'19	16°00'34	max. Earth dist.	2741 Dec 07 22:42	15°J11'59	30.96666 AU
min. Earth dist.	2734 May 18 00:45	26°M05'55	28.67962 AU	retrograde	2742 Mar 21 08:39	17°J47'15	
direct	2734 Aug 04 22:40	24°M41'24		opposition	2742 Jun 07 04:10	16°J25'13	12°27'31
				min. Earth dist.	2742 Jun 06 21:37	16°J25'39	29.05598 AU
conjunction	2734 Nov 20 09:49	27°M25'46	14°48'54	direct	2742 Aug 26 05:02	15°J01'18	
minimum elong	2734 Nov 20 10:09	27°M25'48	14°48'55				
max. Earth dist.	2734 Nov 19 15:53	27°M23'57	30.60970 AU	conjunction	2742 Dec 10 10:16	17°J39'09	11°24'21
	2735 Feb 13 19:52	0°J		minimum elong	2742 Dec 10 10:40	17°J39'11	11°24'21
retrograde	2735 Mar 04 01:03	0°J05'59		max. Earth dist.	2742 Dec 10 19:05	17°J40'01	31.06020 AU
	2735 Mar 22 13:44	30°RM		retrograde	2743 Mar 23 23:32	20°J13'58	
opposition	2735 May 20 02:44	28°M42'42	15°39'43	opposition	2743 Jun 09 23:06	18°J52'10	11°54'45
min. Earth dist.	2735 May 20 18:10	28°M41'37	28.68530 AU	min. Earth dist.	2743 Jun 09 14:37	18°J52'45	29.15030 AU
direct	2735 Aug 07 20:59	27°M16'54		direct	2743 Aug 29 01:25	17°J28'35	
	2735 Nov 22 22:00	0°J					
conjunction	2735 Nov 23 05:26	0°J00'45	14°28'31	conjunction	2743 Dec 13 01:52	20°J05'17	10°53'19
minimum elong	2735 Nov 23 05:45	0°J00'47	14°28'30	minimum elong	2743 Dec 13 02:15	20°J05'19	10°53'19
max. Earth dist.	2735 Nov 22 15:12	29°M59'19	30.62483 AU	max. Earth dist.	2743 Dec 13 12:25	20°J06'18	31.16297 AU
retrograde	2736 Mar 05 19:15	2°J40'33		retrograde	2744 Mar 25 15:06	22°J39'08	
opposition	2736 May 22 00:34	1°J17'21	15°17'01	opposition	2744 Jun 11 17:25	21°J17'34	11°21'00
min. Earth dist.	2736 May 22 13:33	1°J16'26	28.70348 AU	min. Earth dist.	2744 Jun 11 05:06	21°J18'24	29.25380 AU
	2736 Jul 18 10:47	30°RM		direct	2744 Aug 30 20:51	19°J54'18	
direct	2736 Aug 09 18:58	29°M51'44		conjunction	2744 Dec 14 16:50	22°J29'47	10°21'24
	2736 Aug 31 22:20	0°J		minimum elong	2744 Dec 14 17:14	22°J29'49	10°21'24
				max. Earth dist.	2744 Dec 15 07:05	22°J31'10	31.27471 AU

retrograde	2745 Mar 28 03:14	25° 2 02'37		retrograde	2753 Apr 14 22:56	13° 3 06'41	
opposition	2745 Jun 14 11:16	23° 2 41'17	10°46'20	min. Earth dist.	2753 Jul 01 18:19	11° 3 50'14	30.60901 AU
min. Earth dist.	2745 Jun 13 21:09	23° 2 42'14	29.36643 AU	opposition	2753 Jul 03 07:47	11° 3 47'49	5°48'56
direct	2745 Sep 02 15:15	22° 2 18'21		direct	2753 Sep 21 18:34	10° 3 28'04	
conjunction	2745 Dec 17 06:58	24° 2 52'34	9°48'42	conjunction	2754 Jan 03 22:02	12° 3 51'43	5°09'37
minimum elong	2745 Dec 17 07:19	24° 2 52'36	9°48'42	minimum elong	2754 Jan 03 22:15	12° 3 51'44	5°09'37
max. Earth dist.	2745 Dec 17 23:24	24° 2 54'09	31.39575 AU	max. Earth dist.	2754 Jan 05 12:43	12° 3 55'14	32.69644 AU
retrograde	2746 Mar 30 17:02	27° 2 24'19		retrograde	2754 Apr 17 05:21	15° 3 14'26	
min. Earth dist.	2746 Jun 16 10:10	26° 2 04'27	29.48857 AU	min. Earth dist.	2754 Jul 04 04:43	13° 3 58'23	30.80040 AU
opposition	2746 Jun 17 04:13	26° 2 03'14	10°10'53	opposition	2754 Jul 05 19:16	13° 3 55'55	5°10'45
direct	2746 Sep 05 08:53	24° 2 40'37		direct	2754 Sep 24 07:46	12° 3 36'36	
conjunction	2746 Dec 19 20:18	27° 2 13'33	9°15'18	conjunction	2755 Jan 06 05:47	14° 3 58'53	4°33'54
minimum elong	2746 Dec 19 20:40	27° 2 13'35	9°15'18	minimum elong	2755 Jan 06 05:59	14° 3 58'54	4°33'53
max. Earth dist.	2746 Dec 20 16:09	27° 2 15'27	31.52623 AU	max. Earth dist.	2755 Jan 07 21:35	15° 3 02'28	32.89262 AU
retrograde	2747 Apr 02 04:52	29° 2 44'14		retrograde	2755 Apr 19 13:07	17° 3 20'25	
opposition	2747 Jun 19 20:39	28° 2 23'23	9°34'44	min. Earth dist.	2755 Jul 06 12:23	16° 3 04'53	30.99730 AU
min. Earth dist.	2747 Jun 19 00:29	28° 2 24'44	29.62057 AU	opposition	2755 Jul 08 05:52	16° 3 02'14	4°32'38
direct	2747 Sep 08 00:55	27° 2 01'07		direct	2755 Sep 26 19:49	14° 3 43'19	
conjunction	2747 Dec 22 09:00	29° 2 32'44	8°41'18	conjunction	2756 Jan 08 12:55	17° 3 04'15	3°58'16
minimum elong	2747 Dec 22 09:19	29° 2 32'46	8°41'17	minimum elong	2756 Jan 08 13:05	17° 3 04'16	3°58'16
max. Earth dist.	2747 Dec 23 07:46	29° 2 34'54	31.66660 AU	max. Earth dist.	2756 Jan 10 06:55	17° 3 08'01	33.09369 AU
	2748 Jan 03 09:10	0° 3		retrograde	2756 Apr 20 18:16	19° 3 24'37	
retrograde	2748 Apr 03 16:51	2° 3 02'18		min. Earth dist.	2756 Jul 07 21:20	18° 3 09'27	31.19925 AU
opposition	2748 Jun 21 12:08	0° 3 41'45	8°58'00	opposition	2756 Jul 09 15:52	18° 3 06'45	3°54'40
min. Earth dist.	2748 Jun 20 12:17	0° 3 43'20	29.76249 AU	direct	2756 Sep 28 05:50	16° 3 48'14	
	2748 Jul 18 23:10	30° R					
direct	2748 Sep 09 18:41	29° 2 19'51		conjunction	2757 Jan 09 19:24	19° 3 07'47	3°22'46
	2748 Oct 30 04:33	0° 3		minimum elong	2757 Jan 09 19:32	19° 3 07'48	3°22'47
conjunction	2748 Dec 23 20:55	1° 3 50'10	8°06'46	max. Earth dist.	2757 Jan 11 15:07	19° 3 11'41	33.29954 AU
minimum elong	2748 Dec 23 21:15	1° 3 50'12	8°06'45	retrograde	2757 Apr 22 23:17	21° 3 26'58	
max. Earth dist.	2748 Dec 24 22:24	1° 3 52'34	31.81674 AU	min. Earth dist.	2757 Jul 10 04:11	20° 3 12'14	31.40594 AU
retrograde	2749 Apr 06 05:24	4° 3 18'36		opposition	2757 Jul 12 01:06	20° 3 09'24	3°16'55
min. Earth dist.	2749 Jun 23 00:32	3° 3 00'07	29.91447 AU	direct	2757 Sep 30 16:25	18° 3 51'15	
opposition	2749 Jun 24 03:11	2° 3 58'21	8°20'45	conjunction	2758 Jan 12 00:55	21° 3 09'27	2°47'29
direct	2749 Sep 12 08:39	1° 3 36'52		minimum elong	2758 Jan 12 01:01	21° 3 09'27	2°47'29
conjunction	2749 Dec 26 08:07	4° 3 05'51	7°31'48	max. Earth dist.	2758 Jan 13 22:10	21° 3 13'26	33.50985 AU
minimum elong	2749 Dec 26 08:25	4° 3 05'53	7°31'48	retrograde	2758 Apr 25 05:25	23° 3 27'27	
max. Earth dist.	2749 Dec 27 13:03	4° 3 08'34	31.97656 AU	min. Earth dist.	2758 Jul 12 10:50	22° 3 13'05	31.61763 AU
retrograde	2750 Apr 08 15:43	6° 3 33'10		opposition	2758 Jul 14 09:37	22° 3 10'09	2°39'26
opposition	2750 Jun 26 17:26	5° 3 13'16	7°43'08	direct	2758 Oct 02 23:35	20° 3 52'22	
min. Earth dist.	2750 Jun 25 12:00	5° 3 15'11	30.07580 AU	conjunction	2759 Jan 14 05:55	23° 3 09'13	2°12'27
direct	2750 Sep 15 00:37	3° 3 52'12		minimum elong	2759 Jan 14 06:00	23° 3 09'13	2°12'27
conjunction	2750 Dec 28 18:35	6° 3 19'51	6°56'31	max. Earth dist.	2759 Jan 16 05:41	23° 3 13'23	33.72505 AU
minimum elong	2750 Dec 28 18:52	6° 3 19'53	6°56'31	retrograde	2759 Apr 27 08:55	25° 3 26'02	
max. Earth dist.	2750 Dec 30 01:19	6° 3 22'43	32.14521 AU	min. Earth dist.	2759 Jul 14 16:50	24° 3 12'03	31.83442 AU
retrograde	2751 Apr 11 04:12	8° 3 46'02		opposition	2759 Jul 16 17:08	24° 3 09'02	2°02'17
min. Earth dist.	2751 Jun 27 22:20	7° 3 28'35	30.24596 AU	direct	2759 Oct 05 09:20	22° 3 51'37	
opposition	2751 Jun 29 06:47	7° 3 26'28	7°05'13	conjunction	2760 Jan 16 10:02	25° 3 07'08	1°37'43
direct	2751 Sep 17 14:55	6° 3 05'51		minimum elong	2760 Jan 16 10:06	25° 3 07'09	1°37'43
conjunction	2751 Dec 31 04:31	8° 3 32'11	6°21'00	max. Earth dist.	2760 Jan 18 10:45	25° 3 11'21	33.94533 AU
minimum elong	2751 Dec 31 04:46	8° 3 32'12	6°21'00	retrograde	2760 Apr 28 14:39	27° 3 22'48	
max. Earth dist.	2752 Jan 01 14:44	8° 3 35'20	32.32201 AU	min. Earth dist.	2760 Jul 15 21:02	26° 3 09'16	32.05685 AU
retrograde	2752 Apr 12 13:26	10° 3 57'13		opposition	2760 Jul 18 00:05	26° 3 06'06	1°25'29
min. Earth dist.	2752 Jun 29 09:32	9° 3 40'12	30.42392 AU	direct	2760 Oct 06 16:38	24° 3 49'03	
opposition	2752 Jun 30 19:40	9° 3 37'59	6°27'07	conjunction	2761 Jan 17 13:30	27° 3 03'18	1°03'20
direct	2752 Sep 19 05:55	8° 3 17'49		minimum elong	2761 Jan 17 13:32	27° 3 03'18	1°03'20
conjunction	2753 Jan 01 13:30	10° 3 42'48	5°45'20	max. Earth dist.	2761 Jan 19 17:16	27° 3 07'45	34.17104 AU
minimum elong	2753 Jan 01 13:44	10° 3 42'49	5°45'20	retrograde	2761 Apr 30 17:26	29° 3 17'50	
max. Earth dist.	2753 Jan 03 01:04	10° 3 46'04	32.50601 AU	min. Earth dist.	2761 Jul 18 02:17	28° 3 04'40	32.28482 AU
				opposition	2761 Jul 20 06:27	28° 3 01'28	0°49'07

direct	2761 Oct 09 00:43	26° $\overline{3}$ 44'49		retrograde	2769 May 14 23:42	13° \approx 45'11	
				min. Earth dist.	2769 Aug 01 17:28	12° \approx 35'18	34.24429 AU
conjunction	2762 Jan 19 16:18	28° $\overline{3}$ 57'48 0°29'20		opposition	2769 Aug 04 09:18	12° \approx 31'32	-3°-42'-24
minimum elong	2762 Jan 19 16:19	28° $\overline{3}$ 57'49 0°29'20		direct	2769 Oct 24 06:15	11° \approx 18'06	
max. Earth dist.	2762 Jan 21 20:59	29° $\overline{3}$ 02'18 34.40210 AU					
	2762 Feb 20 06:39	0° \approx		conjunction	2770 Feb 02 18:24	13° \approx 21'57	-3°-44'-53
retrograde	2762 May 02 20:13	1° \approx 11'15		minimum elong	2770 Feb 02 18:16	13° \approx 21'56	3°44'54
	2762 Jul 19 05:48	30° \overline{R} 3		max. Earth dist.	2770 Feb 05 09:31	13° \approx 27'00	36.36712 AU
min. Earth dist.	2762 Jul 20 04:42	29° $\overline{3}$ 58'36 32.51818 AU			2770 Apr 02 08:40	15° \approx	
opposition	2762 Jul 22 11:52	29° $\overline{3}$ 55'13 0°13'12		retrograde	2770 May 16 20:42	15° \approx 27'19	
direct	2762 Oct 11 06:53	28° $\overline{3}$ 38'59			2770 Jul 02 00:36	15° \overline{R} \approx	
desc. node	2762 Dec 05 20:51	29° $\overline{3}$ 23'35		min. Earth dist.	2770 Aug 03 18:12	14° \approx 17'40	34.49694 AU
	2762 Dec 27 03:10	0° \approx		opposition	2770 Aug 06 09:56	14° \approx 13'56	-4°-13'-33
				direct	2770 Oct 26 08:52	13° \approx 00'50	
conjunction	2763 Jan 21 18:30	0° \approx 50'46 0°-4'-19			2771 Feb 02 19:18	15° \approx	
minimum elong	2763 Jan 21 18:30	0° \approx 50'46 0°04'20					
behind sun begin	2763 Jan 21 12:15	0° \approx 50'15		conjunction	2771 Feb 04 16:11	15° \approx 03'35	-4°-14'-6
behind sun end	2763 Jan 22 00:46	0° \approx 51'16		minimum elong	2771 Feb 04 16:02	15° \approx 03'34	4°14'07
max. Earth dist.	2763 Jan 24 01:42	0° \approx 55'26 34.63797 AU		max. Earth dist.	2771 Feb 07 07:45	15° \approx 08'39	36.61909 AU
retrograde	2763 May 04 20:31	3° \approx 03'08		retrograde	2771 May 18 16:36	17° \approx 07'58	
min. Earth dist.	2763 Jul 22 08:53	1° \approx 50'52 32.75630 AU		min. Earth dist.	2771 Aug 05 16:25	15° \approx 58'41	34.75075 AU
opposition	2763 Jul 24 16:49	1° \approx 47'28 0°-22'-11		opposition	2771 Aug 08 09:51	15° \approx 54'52	-4°-44'-2
direct	2763 Oct 13 12:56	0° \approx 31'40			2771 Sep 21 15:56	15° \overline{R} \approx	
				direct	2771 Oct 28 10:45	14° \approx 42'05	
conjunction	2764 Jan 23 20:05	2° \approx 42'14 0°-37'-23			2771 Dec 03 00:24	15° \approx	
minimum elong	2764 Jan 23 20:04	2° \approx 42'14 0°37'24					
max. Earth dist.	2764 Jan 26 04:24	2° \approx 46'58 34.87812 AU		conjunction	2772 Feb 06 13:15	16° \approx 43'45	-4°-42'-43
retrograde	2764 May 05 21:07	4° \approx 53'34		minimum elong	2772 Feb 06 13:06	16° \approx 43'44	4°42'45
min. Earth dist.	2764 Jul 23 10:50	3° \approx 41'47 32.99840 AU		max. Earth dist.	2772 Feb 09 05:49	16° \approx 48'52	36.87227 AU
opposition	2764 Jul 25 20:59	3° \approx 38'16 0°-57'-3		retrograde	2772 May 19 13:01	18° \approx 47'12	
direct	2764 Oct 14 17:57	2° \approx 22'53		min. Earth dist.	2772 Aug 06 15:09	17° \approx 38'12	35.00636 AU
				opposition	2772 Aug 09 09:21	17° \approx 34'22	-5°-13'-49
conjunction	2765 Jan 24 21:06	4° \approx 32'18 -1°-9'-59		direct	2772 Oct 29 10:06	16° \approx 21'54	
minimum elong	2765 Jan 24 21:03	4° \approx 32'18 1°10'01					
max. Earth dist.	2765 Jan 27 06:52	4° \approx 37'07 35.12167 AU		conjunction	2773 Feb 07 10:02	18° \approx 22'32	-5°-10'-41
retrograde	2765 May 07 22:48	6° \approx 42'38		minimum elong	2773 Feb 07 09:52	18° \approx 22'31	5°10'42
min. Earth dist.	2765 Jul 25 13:29	5° \approx 31'15 33.24396 AU		max. Earth dist.	2773 Feb 10 04:14	18° \approx 27'44	37.12739 AU
opposition	2765 Jul 28 00:45	5° \approx 27'41 -1°-31'-21		retrograde	2773 May 21 09:13	20° \approx 25'04	
direct	2765 Oct 16 20:23	4° \approx 12'44		min. Earth dist.	2773 Aug 08 13:05	19° \approx 16'22	35.26393 AU
				opposition	2773 Aug 11 08:13	19° \approx 12'30	-5°-42'-55
conjunction	2766 Jan 26 21:37	6° \approx 20'59 -1°-42'-5		direct	2773 Oct 31 09:10	18° \approx 00'22	
minimum elong	2766 Jan 26 21:33	6° \approx 20'59 1°42'07					
max. Earth dist.	2766 Jan 29 09:10	6° \approx 25'55 35.36806 AU		conjunction	2774 Feb 09 06:06	19° \approx 59'59	-5°-38'-1
retrograde	2766 May 09 23:21	8° \approx 30'19		minimum elong	2774 Feb 09 05:56	19° \approx 59'59	5°38'02
min. Earth dist.	2766 Jul 27 15:29	7° \approx 19'20 33.49190 AU		max. Earth dist.	2774 Feb 12 00:32	20° \approx 05'10	37.38439 AU
opposition	2766 Jul 30 03:48	7° \approx 15'43 -2°-5'-3		retrograde	2774 May 23 07:12	22° \approx 01'38	
direct	2766 Oct 19 00:01	6° \approx 01'11		min. Earth dist.	2774 Aug 10 09:39	20° \approx 53'18	35.52356 AU
				opposition	2774 Aug 13 06:33	20° \approx 49'21	-6°-11'-18
conjunction	2767 Jan 28 21:35	8° \approx 08'19 -2°-13'-39		direct	2774 Nov 02 05:31	19° \approx 37'34	
minimum elong	2767 Jan 28 21:30	8° \approx 08'19 2°13'40					
max. Earth dist.	2767 Jan 31 09:17	8° \approx 13'13 35.61628 AU		conjunction	2775 Feb 11 01:56	21° \approx 36'13	-6°-4'-42
retrograde	2767 May 12 02:00	10° \approx 16'39		minimum elong	2775 Feb 11 01:46	21° \approx 36'12	6°04'42
min. Earth dist.	2767 Jul 29 16:12	9° \approx 06'04 33.74169 AU		max. Earth dist.	2775 Feb 13 22:18	21° \approx 41'30	37.64315 AU
opposition	2767 Aug 01 06:06	9° \approx 02'24 -2°-38'-8		retrograde	2775 May 25 02:42	23° \approx 36'59	
direct	2767 Oct 21 00:28	7° \approx 48'15		min. Earth dist.	2775 Aug 12 07:27	22° \approx 28'57	35.78473 AU
				opposition	2775 Aug 15 04:15	22° \approx 25'01	-6°-38'-59
conjunction	2768 Jan 30 21:11	9° \approx 54'17 -2°-44'-38		direct	2775 Nov 04 04:09	21° \approx 13'35	
minimum elong	2768 Jan 30 21:05	9° \approx 54'16 2°44'39					
max. Earth dist.	2768 Feb 02 10:45	9° \approx 59'18 35.86581 AU		conjunction	2776 Feb 12 21:12	23° \approx 11'18	-6°-30'-43
retrograde	2768 May 13 00:43	12° \approx 01'38		minimum elong	2776 Feb 12 21:01	23° \approx 11'17	6°30'45
min. Earth dist.	2768 Jul 30 18:11	10° \approx 51'20 33.99256 AU		max. Earth dist.	2776 Feb 15 17:25	23° \approx 16'32	37.90327 AU
opposition	2768 Aug 02 08:02	10° \approx 47'41 -3°-10'-35		retrograde	2776 May 25 22:55	25° \approx 11'13	
direct	2768 Oct 22 03:09	9° \approx 33'54		min. Earth dist.	2776 Aug 13 02:56	24° \approx 03'34	36.04708 AU
				opposition	2776 Aug 16 01:33	23° \approx 59'33	-7°-5'-58
conjunction	2769 Jan 31 19:59	11° \approx 38'50 -3°-15'-4		direct	2776 Nov 05 01:44	22° \approx 48'28	
minimum elong	2769 Jan 31 19:52	11° \approx 38'49 3°15'04					
max. Earth dist.	2769 Feb 03 09:24	11° \approx 43'48 36.11615 AU		conjunction	2777 Feb 13 15:59	24° \approx 45'18	-6°-56'-6

minimum elong	2777 Feb 13 15:48	24° 44 45'17	6°56'07	minimum elong	2785 Feb 25 09:14	6° 44 40'52	9°56'33
max. Earth dist.	2777 Feb 16 13:42	24° 44 50'36	38.16406 AU	max. Earth dist.	2785 Feb 28 09:20	6° 44 46'06	40.21058 AU
retrograde	2777 May 27 17:26	26° 44 44'25		retrograde	2785 Jun 08 07:24	8° 44 33'59	
min. Earth dist.	2777 Aug 15 00:11	25° 44 37'02	36.30995 AU	min. Earth dist.	2785 Aug 27 05:10	7° 44 28'41	38.36765 AU
opposition	2777 Aug 17 22:34	25° 44 33'02	-7°-32'-14	opposition	2785 Aug 30 05:34	7° 44 24'44	-10°-38'-5
direct	2777 Nov 06 23:09	24° 44 22'19		direct	2785 Nov 19 10:32	6° 44 16'24	
conjunction	2778 Feb 15 10:33	26° 44 18'15	-7°-20'-51	conjunction	2786 Feb 27 00:49	8° 44 05'49	-10°-16'-18
minimum elong	2778 Feb 15 10:21	26° 44 18'14	7°20'52	minimum elong	2786 Feb 27 00:36	8° 44 05'48	10°16'19
max. Earth dist.	2778 Feb 18 08:38	26° 44 23'34	38.42501 AU	max. Earth dist.	2786 Mar 02 00:19	8° 44 10'58	40.46062 AU
retrograde	2778 May 29 10:09	28° 44 16'35		retrograde	2786 Jun 10 01:04	9° 44 58'15	
min. Earth dist.	2778 Aug 16 19:29	27° 44 09'32	36.57251 AU	min. Earth dist.	2786 Aug 28 21:19	8° 44 53'12	38.61971 AU
opposition	2778 Aug 19 18:47	27° 44 05'31	-7°-57'-49	opposition	2786 Aug 31 22:25	8° 44 49'14	-10°-58'-20
direct	2778 Nov 08 21:07	25° 44 55'09		direct	2786 Nov 21 01:20	7° 44 41'11	
conjunction	2779 Feb 17 04:39	27° 44 50'13	-7°-44'-57	conjunction	2787 Feb 28 16:00	9° 44 29'53	-10°-35'-27
minimum elong	2779 Feb 17 04:27	27° 44 50'12	7°44'57	minimum elong	2787 Feb 28 15:48	9° 44 29'52	10°35'28
max. Earth dist.	2779 Feb 20 02:40	27° 44 55'30	38.68516 AU	max. Earth dist.	2787 Mar 03 16:49	9° 44 35'06	40.71023 AU
retrograde	2779 May 31 05:07	29° 44 47'46		retrograde	2787 Jun 11 16:26	11° 44 21'39	
min. Earth dist.	2779 Aug 18 15:21	28° 44 41'01	36.83417 AU	min. Earth dist.	2787 Aug 30 14:27	10° 44 16'49	38.87107 AU
opposition	2779 Aug 21 14:50	28° 44 37'01	-8°-22'-42	opposition	2787 Sep 02 14:59	10° 44 12'53	-11°-17'-55
direct	2779 Nov 10 16:18	27° 44 26'59		direct	2787 Nov 22 17:45	9° 44 05'08	
conjunction	2780 Feb 18 22:28	29° 44 21'12	-8°-8'-25	conjunction	2788 Mar 01 06:36	10° 44 53'08	-10°-54'00
minimum elong	2780 Feb 18 22:15	29° 44 21'11	8°08'27	minimum elong	2788 Mar 01 06:23	10° 44 53'07	10°54'01
max. Earth dist.	2780 Feb 21 21:27	29° 44 26'31	38.94398 AU	max. Earth dist.	2788 Mar 04 06:44	10° 44 58'15	40.95911 AU
retrograde	2780 Mar 11 23:13	0° 44		retrograde	2788 Jun 12 08:45	12° 44 44'15	
min. Earth dist.	2780 May 31 22:48	1° 44 18'00		min. Earth dist.	2788 Aug 31 05:22	11° 44 39'44	39.12157 AU
opposition	2780 Aug 19 11:19	0° 44 11'30	37.09406 AU	opposition	2788 Sep 03 07:11	11° 44 35'45	-11°-36'-52
direct	2780 Aug 22 10:25	0° 44 07'32	-8°-46'-55	direct	2788 Nov 23 08:20	10° 44 28'17	
conjunction	2780 Aug 28 01:25	30° 44		conjunction	2789 Mar 02 21:05	12° 44 15'36	-11°-11'-57
min. Earth dist.	2780 Nov 11 11:51	28° 44 57'49		minimum elong	2789 Mar 02 20:53	12° 44 15'35	11°11'58
direct	2781 Jan 20 21:11	0° 44		max. Earth dist.	2789 Mar 05 22:11	12° 44 20'46	41.20683 AU
conjunction	2781 Feb 19 15:52	0° 44 51'12	-8°-31'-17	retrograde	2789 Jun 13 23:09	14° 44 06'06	
minimum elong	2781 Feb 19 15:40	0° 44 51'11	8°31'17	min. Earth dist.	2789 Sep 01 22:14	13° 44 01'46	39.37074 AU
max. Earth dist.	2781 Feb 22 13:57	0° 44 56'24	39.20088 AU	opposition	2789 Sep 04 23:07	12° 44 57'51	-11°-55'-11
retrograde	2781 Jun 02 18:13	2° 44 47'15		direct	2789 Nov 25 00:33	11° 44 50'41	
min. Earth dist.	2781 Aug 21 05:28	1° 44 41'02	37.35204 AU	conjunction	2790 Mar 04 11:18	13° 44 37'21	-11°-29'-19
opposition	2781 Aug 24 05:35	1° 44 37'02	-9°-10'-29	minimum elong	2790 Mar 04 11:05	13° 44 37'20	11°29'20
direct	2781 Nov 13 05:29	0° 44 27'37		max. Earth dist.	2790 Mar 07 12:07	13° 44 42'28	41.45301 AU
conjunction	2782 Feb 21 08:56	2° 44 20'11	-8°-53'-31	retrograde	2790 Jun 15 11:41	15° 44 27'14	
minimum elong	2782 Feb 21 08:43	2° 44 20'10	8°53'32	min. Earth dist.	2790 Sep 03 13:10	14° 44 23'10	39.61783 AU
max. Earth dist.	2782 Feb 24 08:08	2° 44 25'26	39.45567 AU	opposition	2790 Sep 06 14:33	14° 44 19'15	-12°-12'-54
retrograde	2782 Jun 04 10:46	4° 44 15'28		direct	2790 Nov 26 17:25	13° 44 12'20	
min. Earth dist.	2782 Aug 23 01:13	3° 44 09'26	37.60791 AU	conjunction	2791 Mar 06 01:11	14° 44 58'21	-11°-46'-7
opposition	2782 Aug 26 00:20	3° 44 05'30	-9°-33'-22	minimum elong	2791 Mar 06 01:00	14° 44 58'21	11°46'08
direct	2782 Nov 15 01:13	1° 44 56'22		max. Earth dist.	2791 Mar 09 01:30	15° 44 03'25	41.69671 AU
conjunction	2783 Feb 23 01:33	3° 44 48'07	-9°-15'-8	retrograde	2791 Jun 17 01:19	16° 44 47'39	
minimum elong	2783 Feb 23 01:20	3° 44 48'06	9°15'09	min. Earth dist.	2791 Sep 05 04:55	15° 44 43'48	39.86234 AU
max. Earth dist.	2783 Feb 26 00:04	3° 44 53'17	39.70855 AU	opposition	2791 Sep 08 05:44	15° 44 39'55	-12°-30'-1
retrograde	2783 Jun 06 02:46	5° 44 42'38		direct	2791 Nov 28 09:12	14° 44 33'17	
min. Earth dist.	2783 Aug 24 18:10	4° 44 36'54	37.86207 AU	conjunction	2792 Mar 06 15:01	16° 44 18'39	-12°-2'-22
opposition	2783 Aug 27 18:21	4° 44 32'55	-9°-55'-36	minimum elong	2792 Mar 06 14:49	16° 44 18'38	12°02'22
direct	2783 Nov 16 20:16	3° 44 24'03		max. Earth dist.	2792 Mar 09 15:50	16° 44 23'43	41.93755 AU
conjunction	2784 Feb 24 17:41	5° 44 15'00	-9°-36'-9	retrograde	2792 Jun 17 14:21	18° 44 07'22	
minimum elong	2784 Feb 24 17:28	5° 44 14'59	9°36'10	min. Earth dist.	2792 Sep 05 20:33	17° 44 03'41	40.10349 AU
max. Earth dist.	2784 Feb 27 16:50	5° 44 20'11	39.95993 AU	opposition	2792 Sep 08 20:38	16° 44 59'51	-12°-46'-34
retrograde	2784 Jun 06 17:43	7° 44 08'49		direct	2792 Nov 29 01:25	15° 44 53'28	
min. Earth dist.	2784 Aug 25 12:26	6° 44 03'15	38.11523 AU	conjunction	2793 Mar 08 04:21	17° 44 38'12	-12°-18'-5
opposition	2784 Aug 28 12:15	5° 44 59'19	-10°-17'-11	minimum elong	2793 Mar 08 04:10	17° 44 38'11	12°18'06
direct	2784 Nov 17 15:06	4° 44 50'43		max. Earth dist.	2793 Mar 11 03:42	17° 44 43'08	42.17487 AU
conjunction	2785 Feb 25 09:26	6° 44 40'53	-9°-56'-32	retrograde	2793 Jun 19 06:24	19° 44 26'19	

min. Earth dist.	2793 Sep 07 10:50	18° 18 22'50	40.34103 AU	conjunction	2802 Mar 19 16:29	28° 28 59'27	-14°-16'-15
opposition	2793 Sep 10 11:15	18° 18 19'01	-13°-2'-33	minimum elong	2802 Mar 19 16:21	28° 28 59'27	14°16'16
direct	2793 Nov 30 13:45	17° 17 12'51		max. Earth dist.	2802 Mar 22 14:51	29° 29 04'07	44.18653 AU
					2802 Apr 29 12:44	0° 0 °	
conjunction	2794 Mar 09 17:39	18° 18 56'57	-12°-33'-17	retrograde	2802 Jun 30 14:27	0° 0 °42'45	
minimum elong	2794 Mar 09 17:28	18° 18 56'56	12°33'17		2802 Sep 03 10:26	30° 30 °R 18	
max. Earth dist.	2794 Mar 12 17:24	19° 19 01'53	42.40844 AU	min. Earth dist.	2802 Sep 19 10:10	29° 29 40'47	42.35847 AU
retrograde	2794 Jun 20 19:32	20° 20 44'28		opposition	2802 Sep 22 07:41	29° 29 37'13	-15°-1'-58
min. Earth dist.	2794 Sep 09 02:37	19° 19 41'05	40.57477 AU	direct	2802 Dec 12 13:17	28° 28 33'00	
opposition	2794 Sep 12 01:24	19° 19 37'21	-13°-18'00		2803 Mar 13 10:06	0° 0 °	
direct	2794 Dec 02 04:03	18° 18 31'24					
				conjunction	2803 Mar 21 03:16	0° 0 °12'09	-14°-26'-52
conjunction	2795 Mar 11 06:32	20° 20 14'52	-12°-47'-58	minimum elong	2803 Mar 21 03:07	0° 0 °12'08	14°26'54
minimum elong	2795 Mar 11 06:21	20° 20 14'52	12°47'59	max. Earth dist.	2803 Mar 24 00:28	0° 0 °16'42	44.39887 AU
max. Earth dist.	2795 Mar 14 05:19	20° 20 19'43	42.63851 AU	retrograde	2803 Jul 02 02:26	1° 1 °55'00	
retrograde	2795 Jun 22 07:19	22° 22 01'46		min. Earth dist.	2803 Sep 20 22:18	0° 0 °53'13	42.57083 AU
min. Earth dist.	2795 Sep 10 15:53	20° 20 58'35	40.80515 AU	opposition	2803 Sep 23 19:21	0° 0 °49'41	-15°-12'-38
opposition	2795 Sep 13 15:12	20° 20 54'50	-13°-32'-54		2803 Nov 08 23:20	30° 30 °R 18	
direct	2795 Dec 03 18:32	19° 19 49'05		direct	2803 Dec 14 00:46	29° 29 45'43	
					2804 Jan 17 05:43	0° 0 °	
conjunction	2796 Mar 11 18:53	21° 21 31'56	-13°-2'-8				
minimum elong	2796 Mar 11 18:42	21° 21 31'55	13°02'09	conjunction	2804 Mar 21 13:56	1° 1 °24'23	-14°-37'-3
max. Earth dist.	2796 Mar 14 17:35	21° 21 36'45	42.86545 AU	minimum elong	2804 Mar 21 13:49	1° 1 °24'22	14°37'04
retrograde	2796 Jun 22 18:38	23° 23 18'16		max. Earth dist.	2804 Mar 24 11:33	1° 1 °28'56	44.60773 AU
min. Earth dist.	2796 Sep 11 06:19	22° 22 15'11	41.03289 AU	retrograde	2804 Jul 02 13:10	3° 3 °06'49	
opposition	2796 Sep 14 04:54	22° 22 11'30	-13°-47'-15	min. Earth dist.	2804 Sep 21 11:07	2° 2 °05'09	42.77922 AU
direct	2796 Dec 04 09:04	21° 21 05'56		opposition	2804 Sep 24 06:48	2° 2 °01'42	-15°-22'-51
				direct	2804 Dec 14 13:02	0° 0 °57'56	
conjunction	2797 Mar 13 07:12	22° 22 48'11	-13°-15'-46				
minimum elong	2797 Mar 13 07:01	22° 22 48'10	13°15'48	conjunction	2805 Mar 23 00:30	2° 2 °36'08	-14°-46'-47
max. Earth dist.	2797 Mar 16 06:17	22° 22 53'00	43.09017 AU	minimum elong	2805 Mar 23 00:21	2° 2 °36'08	14°46'48
retrograde	2797 Jun 24 04:45	24° 24 33'57		max. Earth dist.	2805 Mar 25 20:20	2° 2 °40'33	44.81252 AU
min. Earth dist.	2797 Sep 12 19:33	23° 23 31'03	41.25845 AU	retrograde	2805 Jul 04 02:22	4° 4 °18'07	
opposition	2797 Sep 15 18:01	23° 23 27'21	-14°-1'-3	min. Earth dist.	2805 Sep 22 22:07	3° 3 °16'38	42.98334 AU
direct	2797 Dec 06 00:24	22° 22 22'00		opposition	2805 Sep 25 17:54	3° 3 °13'12	-15°-32'-36
				direct	2805 Dec 15 21:24	2° 2 °09'37	
conjunction	2798 Mar 14 19:04	24° 24 03'40	-13°-28'-53				
minimum elong	2798 Mar 14 18:54	24° 24 03'39	13°28'54	conjunction	2806 Mar 24 10:53	3° 3 °47'22	-14°-56'-7
max. Earth dist.	2798 Mar 17 17:11	24° 24 08'23	43.31296 AU	minimum elong	2806 Mar 24 10:47	3° 3 °47'22	14°56'08
retrograde	2798 Jun 25 18:08	25° 25 48'54		max. Earth dist.	2806 Mar 27 06:36	3° 3 °51'45	45.01285 AU
min. Earth dist.	2798 Sep 14 08:07	24° 24 46'11	41.48232 AU	retrograde	2806 Jul 05 14:06	5° 5 °28'54	
opposition	2798 Sep 17 06:57	24° 24 42'30	-14°-14'-18	min. Earth dist.	2806 Sep 24 10:57	4° 4 °27'29	43.18294 AU
direct	2798 Dec 07 12:30	23° 23 37'21		opposition	2806 Sep 27 04:54	4° 4 °24'08	-15°-41'-56
				direct	2806 Dec 17 06:46	3° 3 °20'44	
conjunction	2799 Mar 16 06:48	25° 25 18'28	-13°-41'-29				
minimum elong	2799 Mar 16 06:38	25° 25 18'27	13°41'31	conjunction	2807 Mar 25 21:00	4° 4 °58'01	-15°-5'-1
max. Earth dist.	2799 Mar 19 05:57	25° 25 23'14	43.53409 AU	minimum elong	2807 Mar 25 20:53	4° 4 °58'01	15°05'02
retrograde	2799 Jun 27 06:51	27° 27 03'11		max. Earth dist.	2807 Mar 28 15:50	5° 5 °02'20	45.20892 AU
min. Earth dist.	2799 Sep 15 21:40	26° 26 00'37	41.70440 AU	retrograde	2807 Jul 06 21:35	6° 6 °39'05	
opposition	2799 Sep 18 19:31	25° 25 57'00	-14°-27'00	min. Earth dist.	2807 Sep 25 21:24	5° 5 °37'49	43.37832 AU
direct	2799 Dec 09 00:15	24° 24 52'05		opposition	2807 Sep 28 15:25	5° 5 °34'29	-15°-50'-50
				direct	2807 Dec 18 18:42	4° 4 °31'14	
conjunction	2800 Mar 16 18:13	26° 26 32'40	-13°-53'-34				
minimum elong	2800 Mar 16 18:04	26° 26 32'39	13°53'35	conjunction	2808 Mar 26 06:45	6° 6 °08'02	-15°-13'-30
max. Earth dist.	2800 Mar 19 16:24	26° 26 37'20	43.75362 AU	minimum elong	2808 Mar 26 06:40	6° 6 °08'02	15°13'32
retrograde	2800 Jun 27 20:09	28° 28 16'53		max. Earth dist.	2808 Mar 29 00:32	6° 6 °12'16	45.40112 AU
min. Earth dist.	2800 Sep 16 09:03	27° 27 14'34	41.92474 AU	retrograde	2808 Jul 07 05:34	7° 7 °48'39	
opposition	2800 Sep 19 07:51	27° 27 10'54	-14°-39'-10	min. Earth dist.	2808 Sep 26 08:46	6° 6 °47'28	43.57031 AU
direct	2800 Dec 09 10:10	26° 26 06'13		opposition	2808 Sep 29 01:53	6° 6 °44'11	-15°-59'-17
				direct	2808 Dec 19 07:10	5° 5 °41'06	
conjunction	2801 Mar 18 05:20	27° 27 46'18	-14°-5'-9				
minimum elong	2801 Mar 18 05:10	27° 27 46'18	14°05'10	conjunction	2809 Mar 27 16:25	7° 7 °17'27	-15°-21'-34
max. Earth dist.	2801 Mar 21 03:47	27° 27 50'59	43.97119 AU	minimum elong	2809 Mar 27 16:19	7° 7 °17'26	15°21'35
retrograde	2801 Jun 29 06:09	29° 29 30'04		max. Earth dist.	2809 Mar 30 10:45	7° 7 °21'42	45.59025 AU
min. Earth dist.	2801 Sep 17 22:30	28° 28 27'53	42.14296 AU	retrograde	2809 Jul 08 13:37	8° 8 °57'38	
opposition	2801 Sep 20 20:03	28° 28 24'18	-14°-50'-49	min. Earth dist.	2809 Sep 27 19:41	7° 7 °56'32	43.75926 AU
direct	2801 Dec 10 23:11	27° 27 19'51		opposition	2809 Sep 30 12:00	7° 7 °53'18	-16°-7'-18

direct	2809 Dec 20 19:57	6°V50'21		minimum elong	2818 Apr 06 23:38	17°V20'50	16°15'50
				max. Earth dist.	2818 Apr 09 11:23	17°V24'32	47.16533 AU
conjunction	2810 Mar 29 01:49	8°V26'15	-15°-29'-12	retrograde	2818 Jul 18 23:32	18°V57'41	
minimum elong	2810 Mar 29 01:44	8°V26'15	15°29'14	min. Earth dist.	2818 Oct 08 12:35	17°V57'40	45.32758 AU
max. Earth dist.	2810 Mar 31 18:43	8°V30'24	45.77670 AU	opposition	2818 Oct 10 22:22	17°V54'49	-17°00'-35
retrograde	2810 Jul 10 01:07	10°V06'01		direct	2818 Dec 31 02:59	16°V53'23	
min. Earth dist.	2810 Sep 29 05:02	9°V05'05	43.94577 AU				
opposition	2810 Oct 01 21:44	9°V01'50	-16°-14'-52	conjunction	2819 Apr 08 07:56	18°V25'59	-16°-20'-3
direct	2810 Dec 22 04:21	7°V59'03		minimum elong	2819 Apr 08 07:55	18°V25'59	16°20'04
				max. Earth dist.	2819 Apr 10 19:24	18°V29'39	47.32000 AU
conjunction	2811 Mar 30 11:05	9°V34'31	-15°-36'-25	retrograde	2819 Jul 20 04:25	20°V02'29	
minimum elong	2811 Mar 30 11:00	9°V34'31	15°36'25	min. Earth dist.	2819 Oct 09 21:40	19°V02'32	45.48051 AU
max. Earth dist.	2811 Apr 02 04:22	9°V38'40	45.96077 AU	opposition	2819 Oct 12 06:38	18°V59'44	-17°-4'-40
retrograde	2811 Jul 11 11:04	11°V13'52		direct	2820 Jan 01 14:21	17°V58'26	
min. Earth dist.	2811 Sep 30 16:13	10°V13'00	44.12988 AU				
opposition	2811 Oct 03 07:30	10°V09'51	-16°-22'00	conjunction	2820 Apr 08 15:40	19°V30'41	-16°-23'-56
direct	2811 Dec 23 13:07	9°V07'14		minimum elong	2820 Apr 08 15:38	19°V30'40	16°23'57
				max. Earth dist.	2820 Apr 11 01:15	19°V34'13	47.47011 AU
conjunction	2812 Mar 30 20:02	10°V42'18	-15°-43'-12	retrograde	2820 Jul 20 13:20	21°V06'51	
minimum elong	2812 Mar 30 19:57	10°V42'17	15°43'14	min. Earth dist.	2820 Oct 10 06:13	20°V07'00	45.62930 AU
max. Earth dist.	2812 Apr 02 12:46	10°V46'23	46.14266 AU	opposition	2820 Oct 12 14:47	20°V04'13	-17°-8'-24
retrograde	2812 Jul 11 19:36	12°V21'14		direct	2821 Jan 01 22:26	19°V03'02	
min. Earth dist.	2812 Oct 01 01:15	11°V20'33	44.31159 AU				
opposition	2812 Oct 03 16:59	11°V17'23	-16°-28'-41	conjunction	2821 Apr 09 23:32	20°V34'56	-16°-27'-29
direct	2812 Dec 23 21:47	10°V14'56		minimum elong	2821 Apr 09 23:32	20°V34'56	16°27'30
				max. Earth dist.	2821 Apr 12 09:20	20°V38'29	47.61632 AU
conjunction	2813 Apr 01 04:53	11°V49'37	-15°-49'-35	retrograde	2821 Jul 21 21:43	22°V10'48	
minimum elong	2813 Apr 01 04:49	11°V49'37	15°49'36	min. Earth dist.	2821 Oct 11 15:45	21°V10'58	45.77437 AU
max. Earth dist.	2813 Apr 03 20:52	11°V53'39	46.32201 AU	opposition	2821 Oct 13 22:38	21°V08'17	-17°-11'-46
retrograde	2813 Jul 13 04:00	13°V28'11		direct	2822 Jan 03 06:48	20°V07'13	
min. Earth dist.	2813 Oct 02 11:35	12°V27'37	44.49073 AU				
opposition	2813 Oct 05 02:19	12°V24'30	-16°-34'-57	conjunction	2822 Apr 11 07:11	21°V38'48	-16°-30'-41
direct	2813 Dec 25 06:58	11°V22'14		minimum elong	2822 Apr 11 07:10	21°V38'48	16°30'41
				max. Earth dist.	2822 Apr 13 15:45	21°V42'15	47.75929 AU
conjunction	2814 Apr 02 13:45	12°V56'33	-15°-55'-34	retrograde	2822 Jul 23 06:38	23°V14'19	
minimum elong	2814 Apr 02 13:41	12°V56'33	15°55'36	min. Earth dist.	2822 Oct 12 23:03	22°V14'38	45.91631 AU
max. Earth dist.	2814 Apr 05 05:58	13°V00'35	46.49865 AU	opposition	2822 Oct 15 06:16	22°V11'56	-17°-14'-47
retrograde	2814 Jul 14 10:44	14°V34'46		direct	2823 Jan 04 12:02	21°V10'59	
min. Earth dist.	2814 Oct 03 21:29	13°V34'20	44.66663 AU				
opposition	2814 Oct 06 11:25	13°V31'15	-16°-40'-49	conjunction	2823 Apr 12 14:31	22°V42'17	-16°-33'-32
direct	2814 Dec 26 18:24	12°V29'10		minimum elong	2823 Apr 12 14:31	22°V42'17	16°33'33
				max. Earth dist.	2823 Apr 14 22:29	22°V45'40	47.89917 AU
conjunction	2815 Apr 03 22:16	14°V03'07	-16°-1'-10	retrograde	2823 Jul 24 14:17	24°V17'29	
minimum elong	2815 Apr 03 22:14	14°V03'07	16°01'10	min. Earth dist.	2823 Oct 14 08:06	23°V17'51	46.05536 AU
max. Earth dist.	2815 Apr 06 12:46	14°V07'02	46.67186 AU	opposition	2823 Oct 16 13:54	23°V15'14	-17°-17'-27
retrograde	2815 Jul 15 20:58	15°V41'00		direct	2824 Jan 05 17:51	22°V14'25	
min. Earth dist.	2815 Oct 05 06:41	14°V40'43	44.83889 AU				
opposition	2815 Oct 07 20:22	14°V37'40	-16°-46'-18	conjunction	2824 Apr 12 21:56	23°V45'25	-16°-36'-2
direct	2815 Dec 28 02:50	13°V35'46		minimum elong	2824 Apr 12 21:56	23°V45'25	16°36'03
				max. Earth dist.	2824 Apr 15 05:53	23°V48'48	48.03642 AU
conjunction	2816 Apr 04 06:52	15°V09'23	-16°-6'-23	retrograde	2824 Jul 24 18:39	25°V20'20	
minimum elong	2816 Apr 04 06:49	15°V09'22	16°06'25	min. Earth dist.	2824 Oct 14 15:38	24°V20'49	46.19155 AU
max. Earth dist.	2816 Apr 06 21:27	15°V13'16	46.84108 AU	opposition	2824 Oct 16 21:14	24°V18'13	-17°-19'-45
retrograde	2816 Jul 16 07:30	16°V46'55		direct	2825 Jan 06 03:40	23°V17'32	
min. Earth dist.	2816 Oct 05 17:33	15°V46'42	45.00678 AU				
opposition	2816 Oct 08 05:17	15°V43'45	-16°-51'-24	conjunction	2825 Apr 14 05:01	24°V48'15	-16°-38'-12
direct	2816 Dec 28 10:32	14°V42'02		minimum elong	2825 Apr 14 05:02	24°V48'15	16°38'14
				max. Earth dist.	2825 Apr 16 11:23	24°V51'32	48.17084 AU
conjunction	2817 Apr 05 15:20	16°V15'17	-16°-11'-16	retrograde	2825 Jul 26 01:18	26°V22'54	
minimum elong	2817 Apr 05 15:19	16°V15'17	16°11'17	min. Earth dist.	2825 Oct 15 23:30	25°V23'29	46.32486 AU
max. Earth dist.	2817 Apr 08 04:25	16°V19'05	47.00578 AU	opposition	2825 Oct 18 04:32	25°V20'55	-17°-21'-42
retrograde	2817 Jul 17 16:34	17°V52'29		direct	2826 Jan 07 12:19	24°V20'22	
min. Earth dist.	2817 Oct 07 02:13	16°V52'25	45.16973 AU				
opposition	2817 Oct 09 13:54	16°V49'29	-16°-56'-10	conjunction	2826 Apr 15 12:15	25°V50'49	-16°-40'-2
direct	2817 Dec 29 17:30	15°V47'54		minimum elong	2826 Apr 15 12:17	25°V50'49	16°40'02
				max. Earth dist.	2826 Apr 17 18:54	25°V54'07	48.30215 AU
conjunction	2818 Apr 06 23:41	17°V20'50	-16°-15'-49	retrograde	2826 Jul 27 09:27	27°V25'13	

min. Earth dist.	2826 Oct 17 08:07	26° Υ 25'51	46.45471 AU	max. Earth dist.	2834 Apr 25 16:21	4° ♁ 03'55	49.19464 AU
opposition	2826 Oct 19 11:34	26° Υ 23'22	-17°-23'-19	retrograde	2834 Aug 04 13:47	5° ♁ 33'29	
direct	2827 Jan 08 20:16	25° Υ 22'58		min. Earth dist.	2834 Oct 25 20:17	4° ♁ 34'30	47.33024 AU
				opposition	2834 Oct 27 16:01	4° ♁ 32'24	-17°-25'-35
conjunction	2827 Apr 16 19:17	26° Υ 53'09	-16°-41'-33	direct	2835 Jan 16 23:50	3° ♁ 32'43	
minimum elong	2827 Apr 16 19:18	26° Υ 53'10	16°41'34				
max. Earth dist.	2827 Apr 19 00:23	26° Υ 56'21	48.42998 AU	conjunction	2835 Apr 25 00:11	5° ♁ 00'56	-16°-43'-22
retrograde	2827 Jul 28 19:19	28° Υ 27'18		minimum elong	2835 Apr 25 00:15	5° ♁ 00'56	16°43'22
min. Earth dist.	2827 Oct 18 15:03	27° Υ 28'04	46.58076 AU	max. Earth dist.	2835 Apr 26 20:48	5° ♁ 03'33	49.28785 AU
opposition	2827 Oct 20 18:32	27° Υ 25'35	-17°-24'-37	retrograde	2835 Aug 05 18:41	6° ♁ 33'00	
direct	2828 Jan 10 00:43	26° Υ 25'19		min. Earth dist.	2835 Oct 27 03:05	5° ♁ 34'04	47.42197 AU
				opposition	2835 Oct 28 22:03	5° ♁ 32'01	-17°-24'-32
conjunction	2828 Apr 17 02:07	27° Υ 55'16	-16°-42'-45	direct	2836 Jan 18 06:55	4° ♁ 32'25	
minimum elong	2828 Apr 17 02:10	27° Υ 55'16	16°42'46				
max. Earth dist.	2828 Apr 19 06:18	27° Υ 58'23	48.55359 AU	conjunction	2836 Apr 25 06:13	6° ♁ 00'25	-16°-42'-17
retrograde	2828 Jul 29 02:24	29° Υ 29'09		minimum elong	2836 Apr 25 06:18	6° ♁ 00'25	16°42'18
min. Earth dist.	2828 Oct 19 00:10	28° Υ 29'57	46.70233 AU	max. Earth dist.	2836 Apr 27 03:16	6° ♁ 03'04	49.37832 AU
opposition	2828 Oct 21 01:35	28° Υ 27'34	-17°-25'-36	retrograde	2836 Aug 05 23:51	7° ♁ 32'17	
direct	2829 Jan 10 06:32	27° Υ 27'25		min. Earth dist.	2836 Oct 27 10:12	6° ♁ 33'23	47.51081 AU
				opposition	2836 Oct 29 03:58	6° ♁ 31'24	-17°-23'-11
conjunction	2829 Apr 18 09:13	28° Υ 57'07	-16°-43'-40	direct	2837 Jan 18 15:04	5° ♁ 31'53	
minimum elong	2829 Apr 18 09:14	28° Υ 57'07	16°43'41				
max. Earth dist.	2829 Apr 20 12:47	29° Υ 00'12	48.67253 AU	conjunction	2837 Apr 26 12:15	6° ♁ 59'43	-16°-40'-55
	2829 Jun 05 12:44	0° ♁		minimum elong	2837 Apr 26 12:20	6° ♁ 59'43	16°40'55
retrograde	2829 Jul 30 06:14	0° ♁ 30'44		max. Earth dist.	2837 Apr 28 07:46	7° ♁ 02'15	49.46610 AU
	2829 Sep 24 09:43	30° ♁		retrograde	2837 Aug 07 08:28	8° ♁ 31'23	
min. Earth dist.	2829 Oct 20 07:36	29° Υ 31'36	46.81878 AU	min. Earth dist.	2837 Oct 28 15:38	7° ♁ 32'36	47.59686 AU
opposition	2829 Oct 22 08:14	29° Υ 29'16	-17°-26'-19	opposition	2837 Oct 30 09:34	7° ♁ 30'37	-17°-21'-31
direct	2830 Jan 11 14:45	28° Υ 29'13		direct	2838 Jan 19 18:56	6° ♁ 31'12	
conjunction	2830 Apr 19 16:04	29° Υ 58'40	-16°-44'-19	conjunction	2838 Apr 27 18:12	7° ♁ 58'52	-16°-39'-15
minimum elong	2830 Apr 19 16:07	29° Υ 58'41	16°44'20	minimum elong	2838 Apr 27 18:18	7° ♁ 58'52	16°39'17
	2830 Apr 20 14:19	0° ♁		max. Earth dist.	2838 Apr 29 13:05	8° ♁ 01'22	49.55083 AU
max. Earth dist.	2830 Apr 21 17:19	0° ♁ 01'36	48.78624 AU	retrograde	2838 Aug 08 15:31	9° ♁ 30'22	
retrograde	2830 Jul 31 12:24	1° ♁ 32'01		min. Earth dist.	2838 Oct 29 23:20	8° ♁ 31'37	47.67969 AU
min. Earth dist.	2830 Oct 21 15:26	0° ♁ 32'56	46.93001 AU	opposition	2838 Oct 31 15:21	8° ♁ 29'43	-17°-19'-34
opposition	2830 Oct 23 14:58	0° ♁ 30'39	-17°-26'-44	direct	2839 Jan 20 22:47	7° ♁ 30'25	
	2830 Nov 20 12:21	30° ♁					
direct	2831 Jan 12 22:26	29° Υ 30'41		conjunction	2839 Apr 29 00:04	8° ♁ 57'56	-16°-37'-19
	2831 Mar 05 22:25	0° ♁		minimum elong	2839 Apr 29 00:10	8° ♁ 57'56	16°37'19
				max. Earth dist.	2839 Apr 30 18:36	9° ♁ 00'24	49.63226 AU
conjunction	2831 Apr 20 22:46	0° ♁ 59'52	-16°-44'-42	retrograde	2839 Aug 09 19:30	10° ♁ 29'16	
minimum elong	2831 Apr 20 22:48	0° ♁ 59'52	16°44'43	min. Earth dist.	2839 Oct 31 05:07	9° ♁ 30'37	47.75875 AU
max. Earth dist.	2831 Apr 22 23:48	1° ♁ 02'47	48.89477 AU	opposition	2839 Nov 01 20:52	9° ♁ 28'44	-17°-17'-21
retrograde	2831 Aug 01 17:45	2° ♁ 32'58		direct	2840 Jan 22 04:33	8° ♁ 29'33	
min. Earth dist.	2831 Oct 22 23:45	1° ♁ 33'51	47.03609 AU				
opposition	2831 Oct 24 21:32	1° ♁ 31'40	-17°-26'-53	conjunction	2840 Apr 29 05:53	9° ♁ 56'55	-16°-35'-6
direct	2832 Jan 14 07:20	0° ♁ 31'46		minimum elong	2840 Apr 29 05:58	9° ♁ 56'56	16°35'08
				max. Earth dist.	2840 Apr 30 22:21	9° ♁ 59'16	49.70966 AU
conjunction	2832 Apr 21 05:19	2° ♁ 00'41	-16°-44'-48	retrograde	2840 Aug 10 00:34	11° ♁ 28'06	
minimum elong	2832 Apr 21 05:23	2° ♁ 00'42	16°44'49	min. Earth dist.	2840 Oct 31 12:02	10° ♁ 29'29	47.83359 AU
max. Earth dist.	2832 Apr 23 04:42	2° ♁ 03'30	48.99865 AU	opposition	2840 Nov 02 02:25	10° ♁ 27'40	-17°-14'-51
retrograde	2832 Aug 02 01:54	3° ♁ 33'30		direct	2841 Jan 22 10:40	9° ♁ 28'35	
min. Earth dist.	2832 Oct 23 06:09	2° ♁ 34'28	47.13782 AU				
opposition	2832 Oct 25 03:50	2° ♁ 32'17	-17°-26'-45	conjunction	2841 Apr 30 11:55	10° ♁ 55'50	-16°-32'-39
direct	2833 Jan 14 12:37	1° ♁ 32'27		minimum elong	2841 Apr 30 12:02	10° ♁ 55'50	16°32'39
				max. Earth dist.	2841 May 02 04:06	10° ♁ 58'09	49.78241 AU
conjunction	2833 Apr 22 11:42	3° ♁ 01'07	-16°-44'-37	retrograde	2841 Aug 11 04:59	12° ♁ 26'51	
minimum elong	2833 Apr 22 11:44	3° ♁ 01'07	16°44'38	min. Earth dist.	2841 Nov 01 19:14	11° ♁ 28'16	47.90328 AU
max. Earth dist.	2833 Apr 24 10:16	3° ♁ 03'52	49.09836 AU	opposition	2841 Nov 03 07:54	11° ♁ 26'32	-17°-12'-6
retrograde	2833 Aug 03 09:58	4° ♁ 33'40		direct	2842 Jan 23 18:27	10° ♁ 27'32	
min. Earth dist.	2833 Oct 24 14:15	3° ♁ 34'37	47.23571 AU				
opposition	2833 Oct 26 10:08	3° ♁ 32'31	-17°-26'-19	conjunction	2842 May 01 17:47	11° ♁ 54'37	-16°-29'-57
direct	2834 Jan 15 16:53	2° ♁ 32'45		minimum elong	2842 May 01 17:53	11° ♁ 54'37	16°29'58
				max. Earth dist.	2842 May 03 07:50	11° ♁ 56'49	49.84998 AU
conjunction	2834 Apr 23 18:06	4° ♁ 01'11	-16°-44'-8	retrograde	2842 Aug 12 12:38	13° ♁ 25'28	
minimum elong	2834 Apr 23 18:11	4° ♁ 01'12	16°44'09	min. Earth dist.	2842 Nov 03 01:02	12° ♁ 26'57	47.96768 AU

opposition	2842 Nov 04 13:10	12°♄25'14	-17°-9'-8	retrograde	2850 Aug 20 06:42	21°♄06'48	
direct	2843 Jan 24 23:22	11°♄26'18		min. Earth dist.	2850 Nov 11 01:01	20°♄08'19	48.33479 AU
				opposition	2850 Nov 12 05:02	20°♄07'00	-16°-36'-6
conjunction	2843 May 02 23:34	12°♄53'14	-16°-27'-1	direct	2851 Feb 01 14:18	19°♄08'25	
minimum elong	2843 May 02 23:41	12°♄53'14	16°27'02				
max. Earth dist.	2843 May 04 12:25	12°♄55'21	49.91221 AU	conjunction	2851 May 10 18:54	20°♄34'19	-15°-54'-34
retrograde	2843 Aug 13 21:11	14°♄23'55		minimum elong	2851 May 10 19:02	20°♄34'20	15°54'35
min. Earth dist.	2843 Nov 04 08:36	13°♄25'20	48.02688 AU	max. Earth dist.	2851 May 12 00:41	20°♄36'01	50.27047 AU
opposition	2843 Nov 05 18:35	13°♄23'44	-17°-5'-54	retrograde	2851 Aug 21 09:48	22°♄03'49	
direct	2844 Jan 26 02:16	12°♄24'51		min. Earth dist.	2851 Nov 12 07:08	21°♄05'21	48.36526 AU
				opposition	2851 Nov 13 09:46	21°♄04'06	-16°-30'-48
conjunction	2844 May 03 05:12	13°♄51'37	-16°-23'-52	direct	2852 Feb 02 21:13	20°♄05'35	
minimum elong	2844 May 03 05:18	13°♄51'37	16°23'52				
max. Earth dist.	2844 May 04 17:19	13°♄53'42	49.96961 AU	conjunction	2852 May 11 00:04	21°♄31'24	-15°-49'-22
	2844 Jun 28 05:23	15°♄		minimum elong	2852 May 11 00:14	21°♄31'24	15°49'22
retrograde	2844 Aug 14 01:53	15°♄22'07		max. Earth dist.	2852 May 12 04:01	21°♄32'59	50.29978 AU
	2844 Sep 30 12:20	15°♄		retrograde	2852 Aug 21 15:54	23°♄00'49	
opposition	2844 Nov 05 23:44	14°♄22'00	-17°-2'-27	opposition	2852 Nov 13 14:27	22°♄01'10	-16°-25'-15
min. Earth dist.	2844 Nov 04 14:06	14°♄23'34	48.08134 AU	min. Earth dist.	2852 Nov 12 12:19	22°♄02'23	48.39134 AU
direct	2845 Jan 26 06:28	13°♄23'08		direct	2853 Feb 03 02:09	21°♄02'42	
conjunction	2845 May 04 10:44	14°♄49'45	-16°-20'-27	conjunction	2853 May 12 05:28	22°♄28'27	-15°-43'-56
minimum elong	2845 May 04 10:52	14°♄49'46	16°20'28	minimum elong	2853 May 12 05:37	22°♄28'28	15°43'57
max. Earth dist.	2845 May 05 20:56	14°♄51'43	50.02256 AU	max. Earth dist.	2853 May 13 08:04	22°♄29'58	50.32415 AU
	2845 May 11 21:22	15°♄		retrograde	2853 Aug 22 23:24	23°♄57'47	
retrograde	2845 Aug 15 05:36	16°♄20'04		opposition	2853 Nov 14 19:06	22°♄58'12	-16°-19'-29
min. Earth dist.	2845 Nov 05 20:31	15°♄21'30	48.13179 AU	min. Earth dist.	2853 Nov 13 19:21	22°♄59'19	48.41221 AU
opposition	2845 Nov 07 04:45	15°♄19'59	-16°-58'-43	direct	2854 Feb 04 05:34	21°♄59'46	
	2845 Nov 25 05:44	15°♄					
direct	2846 Jan 27 12:53	14°♄21'10		conjunction	2854 May 13 10:56	23°♄25'28	-15°-38'-18
	2846 Mar 30 02:49	15°♄		minimum elong	2854 May 13 11:06	23°♄25'28	15°38'19
				max. Earth dist.	2854 May 14 12:30	23°♄26'55	50.34325 AU
conjunction	2846 May 05 16:21	15°♄47'38	-16°-16'-47	retrograde	2854 Aug 24 04:57	24°♄54'42	
minimum elong	2846 May 05 16:28	15°♄47'38	16°16'48	opposition	2854 Nov 15 23:41	23°♄55'10	-16°-13'-30
max. Earth dist.	2846 May 07 02:35	15°♄49'36	50.07172 AU	min. Earth dist.	2854 Nov 15 00:27	23°♄56'15	48.42750 AU
retrograde	2846 Aug 16 07:27	17°♄17'47		direct	2855 Feb 05 08:34	22°♄56'45	
min. Earth dist.	2846 Nov 07 02:40	16°♄19'12	48.17856 AU				
opposition	2846 Nov 08 09:45	16°♄17'44	-16°-54'-44	conjunction	2855 May 14 16:00	24°♄22'23	-15°-32'-27
direct	2847 Jan 28 21:52	15°♄18'58		minimum elong	2855 May 14 16:09	24°♄22'23	15°32'29
				max. Earth dist.	2855 May 15 15:13	24°♄23'42	50.35677 AU
conjunction	2847 May 06 21:35	16°♄45'16	-16°-12'-52	retrograde	2855 Aug 25 09:43	25°♄51'31	
minimum elong	2847 May 06 21:44	16°♄45'17	16°12'53	min. Earth dist.	2855 Nov 16 06:55	24°♄53'01	48.43742 AU
max. Earth dist.	2847 May 08 06:14	16°♄47'09	50.11760 AU	opposition	2855 Nov 17 04:22	24°♄52'01	-16°-7'-18
retrograde	2847 Aug 17 14:16	18°♄15'16		direct	2856 Feb 06 13:26	23°♄53'37	
min. Earth dist.	2847 Nov 08 07:33	17°♄16'45	48.22222 AU				
opposition	2847 Nov 09 14:39	17°♄15'17	-16°-50'-29	conjunction	2856 May 14 21:20	25°♄19'11	-15°-26'-24
direct	2848 Jan 30 02:42	16°♄16'32		minimum elong	2856 May 14 21:31	25°♄19'11	15°26'26
				max. Earth dist.	2856 May 15 20:14	25°♄20'29	50.36510 AU
conjunction	2848 May 07 02:57	17°♄42'43	-16°-8'-41	retrograde	2856 Aug 25 11:05	26°♄48'14	
minimum elong	2848 May 07 03:05	17°♄42'44	16°08'41	opposition	2856 Nov 17 08:48	25°♄48'44	-16°00'-53
max. Earth dist.	2848 May 08 10:57	17°♄44'33	50.16040 AU	min. Earth dist.	2856 Nov 16 12:44	25°♄49'41	48.44230 AU
retrograde	2848 Aug 17 21:25	19°♄12'35		direct	2857 Feb 06 21:36	24°♄50'21	
opposition	2848 Nov 09 19:34	18°♄12'39	-16°-45'-58				
min. Earth dist.	2848 Nov 08 14:16	18°♄14'02	48.26288 AU	conjunction	2857 May 16 02:29	26°♄15'50	-15°-20'-7
direct	2849 Jan 30 06:18	17°♄13'57		minimum elong	2857 May 16 02:38	26°♄15'51	15°20'08
				max. Earth dist.	2857 May 16 23:23	26°♄17'01	50.36884 AU
conjunction	2849 May 08 08:21	18°♄40'01	-16°-4'-14	retrograde	2857 Aug 26 17:03	27°♄44'48	
minimum elong	2849 May 08 08:29	18°♄40'02	16°04'16	opposition	2857 Nov 18 13:10	26°♄45'20	-15°-54'-14
max. Earth dist.	2849 May 09 16:00	18°♄41'50	50.20038 AU	min. Earth dist.	2857 Nov 17 17:30	26°♄46'15	48.44288 AU
retrograde	2849 Aug 19 02:10	20°♄09'44		direct	2858 Feb 08 02:25	25°♄46'56	
min. Earth dist.	2849 Nov 09 19:03	19°♄11'15	48.30046 AU				
opposition	2849 Nov 11 00:19	19°♄09'52	-16°-41'-10	conjunction	2858 May 17 07:35	27°♄12'22	-15°-13'-37
direct	2850 Jan 31 10:10	18°♄11'14		minimum elong	2858 May 17 07:46	27°♄12'23	15°13'38
				max. Earth dist.	2858 May 18 03:36	27°♄13'30	50.36839 AU
conjunction	2850 May 09 13:33	19°♄37'12	-15°-59'-31	retrograde	2858 Aug 28 00:11	28°♄41'15	
minimum elong	2850 May 09 13:42	19°♄37'13	15°59'32	opposition	2858 Nov 19 17:32	27°♄41'48	-15°-47'-21
max. Earth dist.	2850 May 10 19:17	19°♄38'54	50.23715 AU	min. Earth dist.	2858 Nov 18 23:53	27°♄42'38	48.43960 AU

direct	2859 Feb 09 05:38	26° 8 43'25		opposition	2866 Nov 27 03:37	5° II 12'54	-14°-43'-22
				min. Earth dist.	2866 Nov 26 18:06	5° II 13'20	48.29058 AU
conjunction	2859 May 18 12:41	28° 8 08'48	-15°-6'-52	direct	2867 Feb 16 16:06	4° II 14'34	
minimum elong	2859 May 18 12:51	28° 8 08'48	15°06'52				
max. Earth dist.	2859 May 19 08:14	28° 8 09'54	50.36456 AU	conjunction	2867 May 26 05:18	5° II 39'58	-14°-4'-20
retrograde	2859 Aug 29 04:36	29° 8 37'36		minimum elong	2867 May 26 05:30	5° II 39'59	14°04'21
opposition	2859 Nov 20 21:46	28° 8 38'11	-15°-40'-12	max. Earth dist.	2867 May 26 14:52	5° II 40'30	50.20938 AU
min. Earth dist.	2859 Nov 20 04:03	28° 8 39'00	48.43303 AU	retrograde	2867 Sep 05 17:07	7° II 08'34	
direct	2860 Feb 10 09:00	27° 8 39'48		opposition	2867 Nov 28 07:51	6° II 09'19	-14°-34'-21
				min. Earth dist.	2867 Nov 27 23:01	6° II 09'44	48.25174 AU
conjunction	2860 May 18 17:33	29° 8 05'09	-14°-59'-53	direct	2868 Feb 17 22:02	5° II 10'57	
minimum elong	2860 May 18 17:43	29° 8 05'10	14°59'54				
max. Earth dist.	2860 May 19 11:14	29° 8 06'09	50.35758 AU	conjunction	2868 May 26 10:24	6° II 36'21	-13°-55'-32
	2860 Jul 01 06:56	0° II		minimum elong	2868 May 26 10:35	6° II 36'22	13°55'33
retrograde	2860 Aug 29 08:52	0° II 33'54		max. Earth dist.	2868 May 26 18:42	6° II 36'49	50.16930 AU
	2860 Oct 28 13:14	30° R 8		retrograde	2868 Sep 05 23:44	8° II 04'57	
min. Earth dist.	2860 Nov 20 09:43	29° 8 35'15	48.42349 AU	opposition	2868 Nov 28 12:10	7° II 05'40	-14°-25'-7
opposition	2860 Nov 21 02:09	29° 8 34'29	-15°-32'-49	min. Earth dist.	2868 Nov 28 05:35	7° II 05'58	48.20799 AU
direct	2861 Feb 10 12:32	28° 8 36'07		direct	2869 Feb 18 02:22	6° II 07'15	
	2861 May 18 20:49	0° II					
conjunction	2861 May 19 22:42	0° II 01'28	-14°-52'-38	conjunction	2869 May 27 15:39	7° II 32'39	-13°-46'-31
minimum elong	2861 May 19 22:53	0° II 01'28	14°52'38	minimum elong	2869 May 27 15:51	7° II 32'40	13°46'33
max. Earth dist.	2861 May 20 16:32	0° II 02'28	50.34764 AU	max. Earth dist.	2869 May 27 23:12	7° II 33'05	50.12472 AU
retrograde	2861 Aug 30 10:52	1° II 30'10		retrograde	2869 Sep 07 04:37	9° II 01'13	
opposition	2861 Nov 22 06:19	0° II 30'48	-15°-25'-10	opposition	2869 Nov 29 16:09	8° II 01'54	-14°-15'-40
min. Earth dist.	2861 Nov 21 14:54	0° II 31'31	48.41088 AU	min. Earth dist.	2869 Nov 29 09:46	8° II 02'12	48.15993 AU
	2861 Dec 21 03:57	30° R 8		direct	2870 Feb 19 05:48	7° II 03'26	
direct	2862 Feb 11 19:26	29° 8 32'26		conjunction	2870 May 28 20:42	8° II 28'52	-13°-37'-17
	2862 Apr 04 09:34	0° II		minimum elong	2870 May 28 20:53	8° II 28'52	13°37'18
conjunction	2862 May 21 03:42	0° II 57'46	-14°-45'-9	max. Earth dist.	2870 May 29 02:09	8° II 29'10	50.07608 AU
minimum elong	2862 May 21 03:52	0° II 57'47	14°45'11	retrograde	2870 Sep 08 10:10	9° II 57'24	
max. Earth dist.	2862 May 21 19:52	0° II 58'41	50.33478 AU	opposition	2870 Nov 30 20:24	8° II 58'04	-14°-5'-58
retrograde	2862 Aug 31 16:00	2° II 26'27		min. Earth dist.	2870 Nov 30 15:32	8° II 58'18	48.10823 AU
opposition	2862 Nov 23 10:33	1° II 27'07	-15°-17'-16	direct	2871 Feb 20 08:39	7° II 59'33	
min. Earth dist.	2862 Nov 22 19:25	1° II 27'50	48.39523 AU	conjunction	2871 May 30 01:43	9° II 25'01	-13°-27'-49
direct	2863 Feb 13 00:16	0° II 28'47		minimum elong	2871 May 30 01:55	9° II 25'01	13°27'51
				max. Earth dist.	2871 May 30 07:20	9° II 25'20	50.02400 AU
conjunction	2863 May 22 08:34	1° II 54'07	-14°-37'-26	retrograde	2871 Sep 09 12:08	10° II 53'34	
minimum elong	2863 May 22 08:46	1° II 54'08	14°37'26	opposition	2871 Dec 02 00:36	9° II 54'12	-13°-56'-2
max. Earth dist.	2863 May 22 23:51	1° II 54'59	50.31855 AU	min. Earth dist.	2871 Dec 01 20:38	9° II 54'23	48.05320 AU
retrograde	2863 Sep 01 23:11	3° II 22'48		direct	2872 Feb 21 15:19	8° II 55'38	
opposition	2863 Nov 24 14:56	2° II 23'30	-15°-9'-7	conjunction	2872 May 30 06:47	10° II 21'09	-13°-18'-7
min. Earth dist.	2863 Nov 24 01:42	2° II 24'07	48.37598 AU	minimum elong	2872 May 30 06:59	10° II 21'09	13°18'07
direct	2864 Feb 14 03:59	1° II 25'12		max. Earth dist.	2872 May 30 10:45	10° II 21'22	49.96896 AU
conjunction	2864 May 22 13:44	2° II 50'32	-14°-29'-28	retrograde	2872 Sep 09 16:41	11° II 49'43	
minimum elong	2864 May 22 13:55	2° II 50'33	14°29'30	opposition	2872 Dec 02 04:39	10° II 50'20	-13°-45'-51
max. Earth dist.	2864 May 23 04:24	2° II 51'22	50.29860 AU	min. Earth dist.	2872 Dec 02 00:56	10° II 50'31	47.99537 AU
retrograde	2864 Sep 02 06:22	4° II 19'12		direct	2873 Feb 21 19:51	9° II 51'45	
opposition	2864 Nov 24 19:02	3° II 19'57	-15°00'-45	conjunction	2873 May 31 12:00	11° II 17'19	-13°-8'-10
min. Earth dist.	2864 Nov 24 06:15	3° II 20'32	48.35256 AU	minimum elong	2873 May 31 12:11	11° II 17'20	13°08'11
direct	2865 Feb 14 05:18	2° II 21'38		max. Earth dist.	2873 May 31 15:02	11° II 17'30	49.91101 AU
conjunction	2865 May 23 18:53	3° II 47'01	-14°-21'-18	retrograde	2873 Sep 10 22:48	12° II 45'57	
minimum elong	2865 May 23 19:04	3° II 47'02	14°21'19	opposition	2873 Dec 03 08:57	11° II 46'34	-13°-35'-24
max. Earth dist.	2865 May 24 07:11	3° II 47'42	50.27404 AU	min. Earth dist.	2873 Dec 03 06:59	11° II 46'40	47.93464 AU
retrograde	2865 Sep 03 12:20	5° II 15'40		direct	2874 Feb 23 00:13	10° II 47'57	
opposition	2865 Nov 25 23:22	4° II 16'25	-14°-52'-10	conjunction	2874 Jun 01 17:11	12° II 13'37	-12°-57'-58
min. Earth dist.	2865 Nov 25 12:28	4° II 16'56	48.32429 AU	minimum elong	2874 Jun 01 17:23	12° II 13'38	12°57'59
direct	2866 Feb 15 08:19	3° II 18'07		max. Earth dist.	2874 Jun 01 19:54	12° II 13'46	49.85031 AU
conjunction	2866 May 25 00:09	4° II 43'30	-14°-12'-55	retrograde	2874 Sep 12 05:38	13° II 42'18	
minimum elong	2866 May 25 00:19	4° II 43'31	14°12'56	opposition	2874 Dec 04 13:04	12° II 42'56	-13°-24'-43
max. Earth dist.	2866 May 25 11:52	4° II 44'10	50.24432 AU	min. Earth dist.	2874 Dec 04 11:05	12° II 43'01	47.87095 AU
retrograde	2866 Sep 04 13:00	6° II 12'08		direct	2875 Feb 24 02:12	11° II 44'18	

conjunction	2875 Jun 02 22:21	13°II10'05	-12°-47'-32	retrograde	2883 Sep 21 03:17	22°II17'14	
minimum elong	2875 Jun 02 22:32	13°II10'05	12°47'34	opposition	2883 Dec 13 04:58	21°II17'33	-11°-38'-10
max. Earth dist.	2875 Jun 02 23:01	13°II10'07	49.78647 AU	min. Earth dist.	2883 Dec 13 14:50	21°II17'05	47.09900 AU
retrograde	2875 Sep 13 12:40	14°II38'51		direct	2884 Mar 03 21:26	20°II18'22	
opposition	2875 Dec 05 17:22	13°II39'29	-13°-13'-46				
min. Earth dist.	2875 Dec 05 17:03	13°II39'30	47.80400 AU	conjunction	2884 Jun 11 00:45	21°II45'19	-11°-3'-44
direct	2876 Feb 25 04:03	12°II40'50		minimum elong	2884 Jun 11 00:56	21°II45'19	11°03'45
				max. Earth dist.	2884 Jun 10 14:32	21°II44'44	49.00803 AU
conjunction	2876 Jun 03 03:44	14°II06'45	-12°-36'-52	retrograde	2884 Sep 21 10:38	23°II14'56	
minimum elong	2876 Jun 03 03:56	14°II06'46	12°36'53	opposition	2884 Dec 13 09:32	22°II15'12	-11°-25'-8
max. Earth dist.	2876 Jun 03 04:13	14°II06'47	49.71900 AU	min. Earth dist.	2884 Dec 13 19:23	22°II14'44	46.99268 AU
retrograde	2876 Sep 13 14:57	15°II35'37		direct	2885 Mar 05 00:44	21°II15'55	
opposition	2876 Dec 05 21:41	14°II36'15	-13°-2'-36				
min. Earth dist.	2876 Dec 05 22:31	14°II36'13	47.73290 AU	conjunction	2885 Jun 12 06:33	22°II43'02	-10°-51'-3
direct	2877 Feb 25 10:51	13°II37'36		minimum elong	2885 Jun 12 06:44	22°II43'03	10°51'03
				max. Earth dist.	2885 Jun 11 18:15	22°II42'20	48.90170 AU
conjunction	2877 Jun 04 09:14	15°II03'38	-12°-25'-59	retrograde	2885 Sep 22 19:14	24°II12'47	
minimum elong	2877 Jun 04 09:25	15°II03'39	12°26'00	opposition	2885 Dec 14 14:11	23°II12'59	-11°-11'-52
max. Earth dist.	2877 Jun 04 07:36	15°II03'33	49.64712 AU	min. Earth dist.	2885 Dec 15 01:35	23°II12'26	46.88352 AU
retrograde	2877 Sep 14 19:14	16°II32'36		direct	2886 Mar 06 01:58	22°II13'37	
opposition	2877 Dec 07 01:55	15°II33'15	-12°-51'-12				
min. Earth dist.	2877 Dec 07 03:41	15°II33'10	47.65710 AU	conjunction	2886 Jun 13 12:32	23°II40'55	-10°-38'-7
direct	2878 Feb 26 16:50	14°II34'33		minimum elong	2886 Jun 13 12:43	23°II40'55	10°38'09
				max. Earth dist.	2886 Jun 13 00:15	23°II40'13	48.79255 AU
conjunction	2878 Jun 05 14:50	16°II00'44	-12°-14'-53	retrograde	2886 Sep 23 23:08	25°II10'48	
minimum elong	2878 Jun 05 15:03	16°II00'45	12°14'54	opposition	2886 Dec 15 18:58	24°II10'57	-10°-58'-20
max. Earth dist.	2878 Jun 05 11:42	16°II00'33	49.57007 AU	min. Earth dist.	2886 Dec 16 07:04	24°II10'22	46.77135 AU
retrograde	2878 Sep 16 02:31	17°II29'48		direct	2887 Mar 07 08:14	23°II11'30	
opposition	2878 Dec 08 06:29	16°II30'25	-12°-39'-36				
min. Earth dist.	2878 Dec 08 10:31	16°II30'14	47.57596 AU	conjunction	2887 Jun 14 18:20	24°II39'00	-10°-24'-57
direct	2879 Feb 27 20:57	15°II31'41		minimum elong	2887 Jun 14 18:31	24°II39'01	10°24'57
				max. Earth dist.	2887 Jun 14 04:25	24°II38'12	48.68041 AU
conjunction	2879 Jun 06 20:21	16°II57'59	-12°-3'-34	retrograde	2887 Sep 25 03:06	26°II09'03	
minimum elong	2879 Jun 06 20:32	16°II57'59	12°03'35	opposition	2887 Dec 16 23:49	25°II09'09	-10°-44'-33
max. Earth dist.	2879 Jun 06 16:13	16°II57'45	49.48779 AU	min. Earth dist.	2887 Dec 17 12:33	25°II08'32	46.65601 AU
retrograde	2879 Sep 17 08:50	18°II27'08		direct	2888 Mar 07 14:38	24°II09'38	
opposition	2879 Dec 09 10:56	17°II27'43	-12°-27'-46	max. Earth dist.	2888 Jun 14 09:25	25°II36'28	48.56459 AU
min. Earth dist.	2879 Dec 09 15:21	17°II27'31	47.48949 AU				
direct	2880 Feb 28 23:58	16°II28'55		conjunction	2888 Jun 15 00:33	25°II37'21	-10°-11'-32
				minimum elong	2888 Jun 15 00:44	25°II37'21	10°11'33
conjunction	2880 Jun 07 01:57	17°II55'19	-11°-52'-3	retrograde	2888 Sep 25 08:56	27°II07'36	
minimum elong	2880 Jun 07 02:09	17°II55'20	11°52'05	opposition	2888 Dec 17 04:43	26°II07'38	-10°-30'-31
max. Earth dist.	2880 Jun 06 19:24	17°II54'57	49.40026 AU	min. Earth dist.	2888 Dec 17 19:36	26°II06'55	46.53670 AU
retrograde	2880 Sep 17 15:42	19°II24'33		direct	2889 Mar 08 20:24	25°II08'02	
opposition	2880 Dec 09 15:24	18°II25'05	-12°-15'-43				
min. Earth dist.	2880 Dec 09 21:48	18°II24'47	47.39809 AU	conjunction	2889 Jun 16 06:58	26°II35'58	-9°-57'-53
direct	2881 Mar 01 02:50	17°II26'12		minimum elong	2889 Jun 16 07:09	26°II35'59	9°57'54
				max. Earth dist.	2889 Jun 15 14:56	26°II35'03	48.44458 AU
conjunction	2881 Jun 08 07:44	18°II52'44	-11°-40'-19	retrograde	2889 Sep 26 16:12	28°II06'25	
minimum elong	2881 Jun 08 07:55	18°II52'45	11°40'20	opposition	2889 Dec 18 09:41	27°II06'24	-10°-16'-14
max. Earth dist.	2881 Jun 08 00:50	18°II52'21	49.30798 AU	min. Earth dist.	2889 Dec 19 00:55	27°II05'40	46.41276 AU
retrograde	2881 Sep 18 18:02	20°II22'03		direct	2890 Mar 10 00:19	26°II06'42	
opposition	2881 Dec 10 19:54	19°II22'31	-12°-3'-27				
min. Earth dist.	2881 Dec 11 03:26	19°II22'09	47.30209 AU	conjunction	2890 Jun 17 13:18	27°II34'53	-9°-44'-1
direct	2882 Mar 02 09:54	18°II23'32		minimum elong	2890 Jun 17 13:28	27°II34'53	9°44'02
				max. Earth dist.	2890 Jun 16 18:44	27°II33'48	48.31952 AU
conjunction	2882 Jun 09 13:17	19°II50'12	-11°-28'-21	retrograde	2890 Sep 28 00:32	29°II05'31	
minimum elong	2882 Jun 09 13:29	19°II50'13	11°28'23	opposition	2890 Dec 19 14:54	28°II05'25	-10°-1'-44
max. Earth dist.	2882 Jun 09 04:30	19°II49'42	49.21150 AU	min. Earth dist.	2890 Dec 20 08:17	28°II04'35	46.28370 AU
retrograde	2882 Sep 19 22:14	21°II19'36		direct	2891 Mar 11 03:34	27°II05'37	
opposition	2882 Dec 12 00:21	20°II20'00	-11°-50'-55				
min. Earth dist.	2882 Dec 12 08:25	20°II19'37	47.20226 AU	conjunction	2891 Jun 18 19:57	28°II34'02	-9°-29'-55
direct	2883 Mar 03 15:18	19°II20'55		minimum elong	2891 Jun 18 20:08	28°II34'02	9°29'56
				max. Earth dist.	2891 Jun 18 00:51	28°II32'56	48.18929 AU
conjunction	2883 Jun 10 18:59	20°II47'43	-11°-16'-10		2891 Sep 07 21:53	0°☿	
minimum elong	2883 Jun 10 19:10	20°II47'44	11°16'10	retrograde	2891 Sep 29 05:22	0°☿04'51	
max. Earth dist.	2883 Jun 10 09:09	20°II47'09	49.11131 AU		2891 Oct 20 14:26	30°♄II	

opposition	2891 Dec 20 20:06	29°II04'40	-9°-46'-59	opposition	2899 Dec 28 16:47	7°☾07'24	-7°-39'-51
min. Earth dist.	2891 Dec 21 14:37	29°II03'46	46.14939 AU	min. Earth dist.	2899 Dec 29 18:41	7°☾06'07	44.94099 AU
direct	2892 Mar 11 10:13	28°II04'44		direct	2900 Mar 20 08:11	6°☾06'21	
max. Earth dist.	2892 Jun 18 05:08	29°II32'10	48.05404 AU	max. Earth dist.	2900 Jun 27 04:33	7°☾35'36	46.84388 AU
conjunction	2892 Jun 19 02:31	29°II33'24	-9°-15'-36	conjunction	2900 Jun 28 10:59	7°☾37'24	-7°-12'-11
minimum elong	2892 Jun 19 02:42	29°II33'24	9°15'37	minimum elong	2900 Jun 28 11:09	7°☾37'25	7°12'11
	2892 Jul 08 12:54	0°☾		retrograde	2900 Oct 08 20:22	9°☾10'31	
retrograde	2892 Sep 29 11:16	1°☾04'25		opposition	2900 Dec 29 23:02	8°☾09'21	-7°-22'-45
opposition	2892 Dec 21 01:21	0°☾04'07	-9°-32'00	min. Earth dist.	2900 Dec 31 02:57	8°☾07'59	44.77688 AU
min. Earth dist.	2892 Dec 21 20:49	0°☾03'11	46.01026 AU	direct	2901 Mar 21 11:38	7°☾08'10	
	2892 Dec 24 15:07	30°RII					
direct	2893 Mar 12 16:14	29°II04'03		conjunction	2901 Jun 29 18:54	8°☾39'36	-6°-55'-36
	2893 May 27 03:09	0°☾		minimum elong	2901 Jun 29 19:03	8°☾39'37	6°55'37
max. Earth dist.	2893 Jun 19 10:38	0°☾31'39	47.91397 AU	max. Earth dist.	2901 Jun 28 12:08	8°☾37'47	46.67903 AU
				retrograde	2901 Oct 10 04:51	10°☾13'02	
conjunction	2893 Jun 20 09:19	0°☾32'58	-9°-1'-3	opposition	2901 Dec 31 05:16	9°☾11'46	-7°-5'-22
minimum elong	2893 Jun 20 09:30	0°☾32'58	9°01'04	min. Earth dist.	2902 Jan 01 10:04	9°☾10'21	44.60863 AU
retrograde	2893 Sep 30 16:18	2°☾04'11		direct	2902 Mar 22 17:38	8°☾10'26	
opposition	2893 Dec 22 06:41	1°☾03'47	-9°-16'-47	max. Earth dist.	2902 Jun 29 17:45	9°☾40'17	46.50985 AU
min. Earth dist.	2893 Dec 23 04:10	1°☾02'45	45.86666 AU				
direct	2894 Mar 13 23:10	0°☾03'34		conjunction	2902 Jul 01 02:51	9°☾42'15	-6°-38'-47
				minimum elong	2902 Jul 01 03:00	9°☾42'16	6°38'47
conjunction	2894 Jun 21 16:08	1°☾32'44	-8°-46'-15	retrograde	2902 Oct 11 13:46	11°☾16'00	
minimum elong	2894 Jun 21 16:18	1°☾32'44	8°46'16	opposition	2903 Jan 01 11:49	10°☾14'36	-6°-47'-44
max. Earth dist.	2894 Jun 20 16:48	1°☾31'22	47.76993 AU	min. Earth dist.	2903 Jan 02 17:43	10°☾13'08	44.43592 AU
retrograde	2894 Oct 01 23:44	3°☾04'10		direct	2903 Mar 24 00:07	9°☾13'06	
opposition	2894 Dec 23 12:03	2°☾03'39	-9°-1'-18	max. Earth dist.	2903 Jul 01 00:38	10°☾43'16	46.33585 AU
min. Earth dist.	2894 Dec 24 09:38	2°☾02'36	45.71937 AU				
direct	2895 Mar 15 03:53	1°☾03'18		conjunction	2903 Jul 02 10:58	10°☾45'19	-6°-21'-43
				minimum elong	2903 Jul 02 11:06	10°☾45'19	6°21'44
conjunction	2895 Jun 22 22:47	2°☾32'43	-8°-31'-13	retrograde	2903 Oct 12 19:09	12°☾19'24	
minimum elong	2895 Jun 22 22:57	2°☾32'44	8°31'14	opposition	2904 Jan 02 18:36	11°☾17'51	-6°-29'-51
max. Earth dist.	2895 Jun 21 21:22	2°☾31'14	47.62234 AU	min. Earth dist.	2904 Jan 04 02:30	11°☾16'16	44.25833 AU
retrograde	2895 Oct 03 09:52	4°☾04'23		direct	2904 Mar 24 08:45	10°☾16'09	
opposition	2895 Dec 24 17:39	3°☾03'45	-8°-45'-33	max. Earth dist.	2904 Jul 01 07:57	11°☾46'36	46.15723 AU
min. Earth dist.	2895 Dec 25 16:57	3°☾02'38	45.56892 AU				
direct	2896 Mar 15 05:48	2°☾03'15		conjunction	2904 Jul 02 19:23	11°☾48'44	-6°-4'-24
max. Earth dist.	2896 Jun 22 04:30	3°☾31'29	47.47179 AU	minimum elong	2904 Jul 02 19:32	11°☾48'45	6°04'25
				retrograde	2904 Oct 13 01:52	13°☾23'09	
conjunction	2896 Jun 23 05:52	3°☾32'58	-8°-15'-56	opposition	2905 Jan 03 01:15	12°☾21'26	-6°-11'-42
minimum elong	2896 Jun 23 06:02	3°☾32'59	8°15'56	min. Earth dist.	2905 Jan 04 09:34	12°☾19'50	44.07625 AU
retrograde	2896 Oct 03 15:51	5°☾04'53		direct	2905 Mar 25 16:45	11°☾19'32	
opposition	2896 Dec 24 23:11	4°☾04'08	-8°-29'-33	max. Earth dist.	2905 Jul 02 14:05	12°☾50'14	45.97413 AU
min. Earth dist.	2896 Dec 25 22:59	4°☾02'58	45.41564 AU				
direct	2897 Mar 16 12:08	3°☾03'29		conjunction	2905 Jul 04 03:55	12°☾52'30	-5°-46'-50
max. Earth dist.	2897 Jun 23 09:52	4°☾31'55	47.31867 AU	minimum elong	2905 Jul 04 04:03	12°☾52'31	5°46'51
				retrograde	2905 Oct 14 12:36	14°☾27'16	
conjunction	2897 Jun 24 12:56	4°☾33'30	-8°00'-23	opposition	2906 Jan 04 08:17	13°☾25'22	-5°-53'-16
minimum elong	2897 Jun 24 13:06	4°☾33'31	8°00'25	min. Earth dist.	2906 Jan 05 18:40	13°☾23'39	43.89008 AU
retrograde	2897 Oct 04 21:05	6°☾05'41		direct	2906 Mar 26 21:07	12°☾23'14	
opposition	2897 Dec 26 04:56	5°☾04'49	-8°-13'-15	max. Earth dist.	2906 Jul 03 22:38	13°☾54'19	45.78719 AU
min. Earth dist.	2897 Dec 27 05:21	5°☾03'38	45.25998 AU				
direct	2898 Mar 17 19:15	4°☾04'02		conjunction	2906 Jul 05 12:32	13°☾56'36	-5°-29'00
				minimum elong	2906 Jul 05 12:40	13°☾56'37	5°29'02
conjunction	2898 Jun 25 20:05	5°☾34'23	-7°-44'-34	retrograde	2906 Oct 15 21:06	15°☾31'43	
minimum elong	2898 Jun 25 20:15	5°☾34'24	7°44'35	opposition	2907 Jan 05 15:22	14°☾29'38	-5°-34'-34
max. Earth dist.	2898 Jun 24 16:13	5°☾32'45	47.16302 AU	min. Earth dist.	2907 Jan 07 02:10	14°☾27'54	43.70034 AU
retrograde	2898 Oct 06 02:12	7°☾06'51		direct	2907 Mar 28 03:56	13°☾27'17	
opposition	2898 Dec 27 10:54	6°☾05'54	-7°-56'-41	max. Earth dist.	2907 Jul 05 05:25	14°☾58'39	45.59704 AU
min. Earth dist.	2898 Dec 28 12:48	6°☾04'38	45.10180 AU				
direct	2899 Mar 19 03:12	5°☾04'59		conjunction	2907 Jul 06 21:16	15°☾01'04	-5°-10'-56
max. Earth dist.	2899 Jun 25 23:05	6°☾34'00	47.00498 AU	minimum elong	2907 Jul 06 21:23	15°☾01'05	5°10'56
				retrograde	2907 Oct 17 06:39	16°☾36'32	
conjunction	2899 Jun 27 03:27	6°☾35'40	-7°-28'-30	opposition	2908 Jan 06 22:33	15°☾34'16	-5°-15'-36
minimum elong	2899 Jun 27 03:37	6°☾35'41	7°28'32	min. Earth dist.	2908 Jan 08 10:24	15°☾32'28	43.50780 AU
retrograde	2899 Oct 07 10:18	8°☾08'27		direct	2908 Mar 28 10:49	14°☾31'41	

max. Earth dist.	2908 Jul 05 13:47	16°03'27	45.40408 AU	minimum elong	2916 Jul 16 15:29	25°06'27	2°16'16
				retrograde	2916 Oct 27 00:09	26°46'17	
conjunction	2908 Jul 07 06:21	16°05'56	-4°-52'-35	opposition	2917 Jan 16 02:06	25°42'25	-2°-11'-57
minimum elong	2908 Jul 07 06:28	16°05'56	4°52'36	min. Earth dist.	2917 Jan 17 23:08	25°40'04	41.65423 AU
retrograde	2908 Oct 17 13:13	17°41'47		direct	2917 Apr 07 11:40	24°37'51	
opposition	2909 Jan 07 06:06	16°39'20	-4°-56'-20	max. Earth dist.	2917 Jul 15 22:32	26°13'47	43.54273 AU
min. Earth dist.	2909 Jan 08 19:16	16°37'27	43.31266 AU				
direct	2909 Mar 29 20:46	15°36'32		conjunction	2917 Jul 18 02:45	26°17'06	-1°-55'-32
max. Earth dist.	2909 Jul 06 22:16	17°08'42	45.20885 AU	minimum elong	2917 Jul 18 02:48	26°17'06	1°55'33
				retrograde	2917 Oct 28 13:48	27°57'29	
conjunction	2909 Jul 08 15:33	17°11'14	-4°-33'-58	opposition	2918 Jan 17 11:43	26°53'22	-1°-50'-9
minimum elong	2909 Jul 08 15:39	17°11'14	4°33'58	min. Earth dist.	2918 Jan 19 10:28	26°50'56	41.43006 AU
retrograde	2909 Oct 18 21:21	18°47'30		direct	2918 Apr 08 19:30	25°48'31	
opposition	2910 Jan 08 13:38	17°44'53	-4°-36'-47	max. Earth dist.	2918 Jul 17 09:42	27°25'01	43.31723 AU
min. Earth dist.	2910 Jan 10 02:40	17°43'00	43.11544 AU				
direct	2910 Mar 31 04:53	16°41'52		conjunction	2918 Jul 19 14:26	27°28'23	-1°-34'-34
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conjunction	2910 Jul 10 00:56	18°17'04	-4°-15'-5	opposition	2919 Jan 18 21:37	28°04'56	-1°-28'-3
minimum elong	2910 Jul 10 01:02	18°17'04	4°15'07	min. Earth dist.	2919 Jan 20 21:26	28°02'26	41.20264 AU
retrograde	2910 Oct 20 07:56	19°53'48		direct	2919 Apr 10 07:13	26°59'48	
opposition	2911 Jan 09 21:37	18°51'00	-4°-16'-57	max. Earth dist.	2919 Jul 18 20:08	28°36'50	43.08889 AU
min. Earth dist.	2911 Jan 11 12:24	18°49'02	42.91624 AU				
direct	2911 Apr 01 10:36	17°47'48		conjunction	2919 Jul 21 02:10	28°40'18	-1°-13'-20
max. Earth dist.	2911 Jul 09 15:43	19°20'52	44.81209 AU	minimum elong	2919 Jul 21 02:12	28°40'18	1°13'21
					2919 Sep 18 05:10	0°01	
conjunction	2911 Jul 11 10:33	19°23'30	-3°-55'-56	retrograde	2919 Oct 31 13:32	0°02'148	
minimum elong	2911 Jul 11 10:39	19°23'31	3°55'57		2919 Dec 14 04:19	30°R	
retrograde	2911 Oct 21 18:52	21°00'43		opposition	2920 Jan 20 07:44	29°17'10	-1°-5'-40
opposition	2912 Jan 11 05:44	19°57'46	-3°-56'-49	min. Earth dist.	2920 Jan 22 07:51	29°14'38	40.97272 AU
min. Earth dist.	2912 Jan 12 20:42	19°55'47	42.71476 AU	direct	2920 Apr 10 18:35	28°11'42	
direct	2912 Apr 01 17:41	18°54'22		max. Earth dist.	2920 Jul 19 07:00	29°49'17	42.85802 AU
max. Earth dist.	2912 Jul 09 23:30	20°27'52	44.61016 AU				
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conjunction	2912 Jul 11 20:30	20°30'39	-3°-36'-31	minimum elong	2920 Jul 21 14:27	29°52'52	0°51'52
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retrograde	2912 Oct 22 07:45	22°08'21		retrograde	2920 Oct 31 23:11	1°034'58	
opposition	2913 Jan 11 13:58	21°05'15	-3°-36'-24	opposition	2921 Jan 20 18:10	0°030'03	0°-43'-1
min. Earth dist.	2913 Jan 13 06:17	21°03'11	42.51058 AU	min. Earth dist.	2921 Jan 22 20:04	0°027'25	40.74073 AU
direct	2913 Apr 03 00:14	20°01'39			2921 Feb 14 07:30	30°R	
max. Earth dist.	2913 Jul 11 09:12	21°35'40	44.40493 AU	direct	2921 Apr 12 05:31	29°24'17	
					2921 Jun 07 01:37	0°01	
conjunction	2913 Jul 13 06:54	21°38'31	-3°-16'-51	max. Earth dist.	2921 Jul 20 19:32	1°02'31	42.62541 AU
minimum elong	2913 Jul 13 06:59	21°38'31	3°16'51				
retrograde	2913 Oct 23 17:12	23°16'44		conjunction	2921 Jul 23 02:59	1°06'08	0°-30'-6
opposition	2914 Jan 12 22:40	22°13'28	-3°-15'-43	minimum elong	2921 Jul 23 02:59	1°06'08	0°30'08
min. Earth dist.	2914 Jan 14 16:33	22°11'20	42.30276 AU	retrograde	2921 Nov 02 10:24	2°048'50	
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max. Earth dist.	2914 Jul 12 18:16	22°44'10	44.19587 AU	min. Earth dist.	2922 Jan 24 06:34	1°041'02	40.50723 AU
				direct	2922 Apr 13 16:10	0°037'35	
conjunction	2914 Jul 14 17:19	22°47'07	-2°-56'-54	max. Earth dist.	2922 Jul 22 06:12	2°016'23	42.39135 AU
minimum elong	2914 Jul 14 17:24	22°47'08	2°56'55				
retrograde	2914 Oct 25 01:47	24°25'53		conjunction	2922 Jul 24 15:34	2°020'08	0°-8'-9
opposition	2915 Jan 14 07:32	23°22'26	-2°-54'-44	minimum elong	2922 Jul 24 15:35	2°020'08	0°08'10
min. Earth dist.	2915 Jan 16 01:57	23°20'15	42.09091 AU	behind sun begin	2922 Jul 24 09:49	2°019'47	
direct	2915 Apr 05 20:05	22°18'24		behind sun end	2922 Jul 24 21:21	2°020'29	
max. Earth dist.	2915 Jul 14 02:54	23°53'21	43.98240 AU	retrograde	2922 Nov 04 01:52	4°003'31	
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conjunction	2915 Jul 16 04:12	23°56'27	-2°-36'-42	opposition	2923 Jan 23 16:04	2°058'05	0°03'07
minimum elong	2915 Jul 16 04:16	23°56'27	2°36'43	min. Earth dist.	2923 Jan 25 19:04	2°055'21	40.27256 AU
retrograde	2915 Oct 26 12:35	25°35'45		direct	2923 Apr 14 23:23	1°051'41	
opposition	2916 Jan 15 16:43	24°32'06	-2°-33'-29	max. Earth dist.	2923 Jul 23 19:38	3°031'13	42.15601 AU
min. Earth dist.	2916 Jan 17 13:23	24°29'47	41.87470 AU				
direct	2916 Apr 06 03:52	23°27'49		conjunction	2923 Jul 26 04:51	3°034'59	0°14'10
max. Earth dist.	2916 Jul 14 13:39	25°03'18	43.76464 AU	minimum elong	2923 Jul 26 04:50	3°034'59	0°14'09
				behind sun begin	2923 Jul 26 01:52	3°034'48	
conjunction	2916 Jul 16 15:26	25°06'27	-2°-16'-15	behind sun end	2923 Jul 26 07:47	3°035'10	



























































































































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opposition	2924 Jan 25 03:25	4°♏13'21	0°26'36	min. Earth dist.	2932 Feb 06 23:47	14°♏47'55	38.06114 AU
min. Earth dist.	2924 Jan 27 06:56	4°♏10'35	40.03654 AU	direct	2932 Apr 25 18:44	13°♏41'43	
direct	2924 Apr 15 10:10	3°♏06'39			2932 Jul 18 03:01	15°♏	
max. Earth dist.	2924 Jul 24 07:41	4°♏46'52	41.91923 AU	max. Earth dist.	2932 Aug 04 02:02	15°♏28'05	39.93015 AU
conjunction	2924 Jul 26 18:23	4°♏50'45	0°36'39	conjunction	2932 Aug 06 22:06	15°♏32'52	3°44'51
minimum elong	2924 Jul 26 18:22	4°♏50'45	0°36'39	minimum elong	2932 Aug 06 21:59	15°♏32'51	3°44'52
retrograde	2924 Nov 06 06:40	6°♏35'30		retrograde	2932 Nov 17 10:26	17°♏24'02	
opposition	2925 Jan 25 15:09	5°♏29'34	0°50'22	opposition	2933 Feb 05 03:49	16°♏15'37	4°09'30
min. Earth dist.	2925 Jan 27 19:22	5°♏26'45	39.79892 AU	min. Earth dist.	2933 Feb 07 16:30	16°♏12'11	37.80557 AU
direct	2925 Apr 16 22:06	4°♏22'34		direct	2933 Apr 27 08:31	15°♏05'42	
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retrograde	2925 Nov 07 19:57	7°♏52'59		retrograde	2933 Nov 19 02:53	18°♏49'55	
opposition	2926 Jan 27 03:23	6°♏46'47	1°14'23	opposition	2934 Feb 06 19:16	17°♏41'10	4°35'24
min. Earth dist.	2926 Jan 29 09:22	6°♏43'51	39.55887 AU	min. Earth dist.	2934 Feb 09 07:27	17°♏37'45	37.54987 AU
direct	2926 Apr 18 11:25	5°♏39'29		direct	2934 Apr 28 23:23	16°♏30'52	
max. Earth dist.	2926 Jul 27 10:19	7°♏21'10	41.43855 AU	max. Earth dist.	2934 Aug 07 11:55	18°♏19'05	39.41670 AU
conjunction	2926 Jul 29 22:51	7°♏25'14	1°22'22	conjunction	2934 Aug 10 09:10	18°♏24'01	4°33'53
minimum elong	2926 Jul 29 22:48	7°♏25'13	1°22'22	minimum elong	2934 Aug 10 09:01	18°♏24'00	4°33'53
retrograde	2926 Nov 09 09:36	9°♏11'29		retrograde	2934 Nov 20 22:50	20°♏17'04	
opposition	2927 Jan 28 15:54	8°♏05'01	1°38'40	opposition	2935 Feb 08 11:17	19°♏07'58	5°01'28
min. Earth dist.	2927 Jan 30 21:59	8°♏02'04	39.31603 AU	min. Earth dist.	2935 Feb 11 00:28	19°♏04'28	37.29466 AU
direct	2927 Apr 20 00:15	6°♏57'23		direct	2935 Apr 30 12:11	17°♏57'16	
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conjunction	2927 Jul 31 13:37	8°♏43'58	1°45'34	conjunction	2935 Aug 12 03:34	19°♏51'30	4°58'37
minimum elong	2927 Jul 31 13:34	8°♏43'58	1°45'34	minimum elong	2935 Aug 12 03:25	19°♏51'29	4°58'37
retrograde	2927 Nov 11 00:48	10°♏31'01		retrograde	2935 Nov 22 18:44	21°♏45'32	
opposition	2928 Jan 30 04:59	9°♏24'15	2°03'13	opposition	2936 Feb 10 03:52	20°♏36'06	5°27'42
min. Earth dist.	2928 Feb 01 13:09	9°♏21'10	39.07007 AU	min. Earth dist.	2936 Feb 12 17:26	20°♏32'34	37.03977 AU
direct	2928 Apr 20 11:03	8°♏16'16		direct	2936 May 01 04:06	19°♏25'01	
max. Earth dist.	2928 Jul 29 13:58	9°♏59'26	40.94573 AU	max. Earth dist.	2936 Aug 10 00:29	21°♏15'18	38.90434 AU
conjunction	2928 Aug 01 05:03	10°♏03'43	2°09'00	conjunction	2936 Aug 12 22:28	21°♏20'23	5°23'28
minimum elong	2928 Aug 01 04:59	10°♏03'43	2°09'01	minimum elong	2936 Aug 12 22:17	21°♏20'22	5°23'29
retrograde	2928 Nov 11 16:32	11°♏51'32		retrograde	2936 Nov 23 16:19	23°♏15'25	
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min. Earth dist.	2929 Feb 02 03:00	10°♏41'21	38.82103 AU	min. Earth dist.	2937 Feb 13 10:34	22°♏02'06	36.78517 AU
direct	2929 Apr 21 23:40	9°♏36'08		direct	2937 May 02 19:57	20°♏54'13	
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conjunction	2929 Aug 02 20:42	11°♏24'28	2°32'40	conjunction	2937 Aug 14 18:06	22°♏50'43	5°48'27
minimum elong	2929 Aug 02 20:37	11°♏24'28	2°32'39	minimum elong	2937 Aug 14 17:55	22°♏50'43	5°48'27
retrograde	2929 Nov 13 10:55	13°♏13'05		retrograde	2937 Nov 25 11:36	24°♏46'49	
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min. Earth dist.	2930 Feb 03 17:52	12°♏02'30	38.56954 AU	min. Earth dist.	2938 Feb 15 05:48	23°♏33'04	36.53017 AU
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conjunction	2930 Aug 04 12:42	12°♏46'13	2°56'32	conjunction	2938 Aug 16 14:06	24°♏22'34	6°13'31
minimum elong	2930 Aug 04 12:36	12°♏46'13	2°56'32	minimum elong	2938 Aug 16 13:53	24°♏22'33	6°13'31
retrograde	2930 Nov 15 02:23	14°♏35'40		retrograde	2938 Nov 27 07:51	26°♏19'44	
opposition	2931 Feb 02 22:18	13°♏27'56	3°18'19	opposition	2939 Feb 14 08:45	25°♏09'19	6°47'13
min. Earth dist.	2931 Feb 05 09:20	13°♏24'39	38.31596 AU	min. Earth dist.	2939 Feb 16 23:51	25°♏05'37	36.27437 AU
direct	2931 Apr 25 02:36	12°♏18'50		direct	2939 May 06 09:19	23°♏57'04	
max. Earth dist.	2931 Aug 03 10:38	14°♏04'22	40.18644 AU	max. Earth dist.	2939 Aug 15 10:03	25°♏50'30	38.13291 AU
conjunction	2931 Aug 06 05:09	14°♏09'00	3°20'36	conjunction	2939 Aug 18 10:55	25°♏55'56	6°38'41
minimum elong	2931 Aug 06 05:03	14°♏09'00	3°20'35	minimum elong	2939 Aug 18 10:42	25°♏55'55	6°38'41
	2931 Sep 06 20:12	15°♏		retrograde	2939 Nov 29 04:42	27°♏54'10	
retrograde	2931 Nov 16 18:20	15°♏59'18		opposition	2940 Feb 16 03:35	26°♏43'23	7°13'56
	2932 Jan 29 00:04	15°♏		min. Earth dist.	2940 Feb 18 20:32	26°♏39'34	36.01746 AU

direct	2940 May 07 01:20	25°Ω30'42		direct	2948 May 20 00:38	8°♄54'23	
max. Earth dist.	2940 Aug 16 07:42	27°Ω25'18	37.87354 AU	max. Earth dist.	2948 Aug 30 05:54	10°♄58'49	35.81106 AU
conjunction	2940 Aug 19 08:28	27°Ω30'46	7°03'54	conjunction	2948 Sep 02 10:14	11°♄05'00	10°24'18
minimum elong	2940 Aug 19 08:14	27°Ω30'45	7°03'54	minimum elong	2948 Sep 02 09:54	11°♄04'59	10°24'17
retrograde	2940 Nov 30 01:00	29°Ω30'07		retrograde	2948 Dec 14 09:14	13°♄14'01	
opposition	2941 Feb 16 23:05	28°Ω18'57	7°40'45	opposition	2949 Mar 02 10:09	11°♄59'32	11°13'49
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conjunction	2941 Aug 21 06:21	29°Ω07'06	7°29'10	conjunction	2949 Sep 04 13:39	12°♄54'44	10°48'35
minimum elong	2941 Aug 21 06:07	29°Ω07'05	7°29'10	minimum elong	2949 Sep 04 13:18	12°♄54'43	10°48'36
	2941 Sep 20 06:34	0°♄		retrograde	2949 Dec 16 13:06	15°♄05'08	
retrograde	2941 Dec 02 01:03	1°♄07'34		opposition	2950 Mar 04 11:58	13°♄50'16	11°39'39
	2942 Feb 15 23:40	30°♄Ω		min. Earth dist.	2950 Mar 07 07:40	13°♄46'00	33.47784 AU
opposition	2942 Feb 18 19:08	29°Ω55'59	8°07'36	direct	2950 May 23 22:37	12°♄32'55	
min. Earth dist.	2942 Feb 21 13:04	29°Ω52'03	35.50076 AU	max. Earth dist.	2950 Sep 03 13:56	14°♄40'16	35.31671 AU
direct	2942 May 10 14:07	28°Ω42'22					
	2942 Jul 29 04:11	0°♄		conjunction	2950 Sep 06 17:48	14°♄46'33	11°12'33
max. Earth dist.	2942 Aug 20 02:29	0°♄39'12	37.35214 AU	minimum elong	2950 Sep 06 17:26	14°♄46'31	11°12'33
conjunction	2942 Aug 23 05:04	0°♄44'54	7°54'27	retrograde	2950 Dec 18 20:36	16°♄58'19	
minimum elong	2942 Aug 23 04:48	0°♄44'53	7°54'26	opposition	2951 Mar 06 14:20	15°♄43'04	12°05'08
retrograde	2942 Dec 03 23:44	2°♄46'30		min. Earth dist.	2951 Mar 09 09:37	15°♄38'48	33.23580 AU
opposition	2943 Feb 20 15:50	1°♄34'29	8°34'29	direct	2951 May 26 01:36	14°♄25'16	
min. Earth dist.	2943 Feb 23 10:36	1°♄30'29	35.24188 AU	max. Earth dist.	2951 Sep 05 18:36	16°♄34'04	35.07257 AU
direct	2943 May 12 10:05	0°♄20'24		conjunction	2951 Sep 08 22:55	16°♄40'26	11°36'11
max. Earth dist.	2943 Aug 22 00:53	2°♄18'22	37.09131 AU	minimum elong	2951 Sep 08 22:34	16°♄40'24	11°36'12
conjunction	2943 Aug 25 04:13	2°♄24'11	8°19'42	retrograde	2951 Dec 21 03:29	18°♄53'36	
minimum elong	2943 Aug 25 03:57	2°♄24'10	8°19'43	opposition	2952 Mar 07 17:51	17°♄37'57	12°30'16
retrograde	2943 Dec 06 01:02	4°♄26'56		min. Earth dist.	2952 Mar 10 14:17	17°♄33'35	32.99557 AU
opposition	2944 Feb 22 13:04	3°♄14'30	9°01'20	direct	2952 May 27 04:27	16°♄19'42	
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conjunction	2944 Aug 26 04:09	4°♄05'00	8°44'54	retrograde	2952 Dec 22 09:59	20°♄50'56	
minimum elong	2944 Aug 26 03:51	4°♄04'59	8°44'54	opposition	2953 Mar 09 22:00	19°♄34'53	12°54'58
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direct	2945 May 15 05:56	3°♄40'59		conjunction	2953 Sep 12 11:30	20°♄34'23	12°22'12
max. Earth dist.	2945 Aug 25 01:12	5°♄41'27	36.57235 AU	minimum elong	2953 Sep 12 11:07	20°♄34'21	12°22'13
conjunction	2945 Aug 28 04:39	5°♄47'24	9°10'01	retrograde	2953 Dec 24 16:49	22°♄50'19	
minimum elong	2945 Aug 28 04:21	5°♄47'22	9°10'01	opposition	2954 Mar 12 03:09	21°♄33'51	13°19'11
retrograde	2945 Dec 09 02:12	7°♄52'31		min. Earth dist.	2954 Mar 14 23:36	21°♄29'25	32.52146 AU
opposition	2946 Feb 25 09:46	6°♄39'14	9°54'50	direct	2954 May 31 11:50	20°♄14'39	
min. Earth dist.	2946 Feb 28 04:36	6°♄35'07	34.47123 AU	max. Earth dist.	2954 Sep 11 15:23	22°♄27'53	34.35259 AU
direct	2946 May 17 04:55	5°♄23'40		conjunction	2954 Sep 14 18:53	22°♄34'23	12°44'29
max. Earth dist.	2946 Aug 27 01:11	7°♄25'22	36.31581 AU	minimum elong	2954 Sep 14 18:30	22°♄34'21	12°44'28
conjunction	2946 Aug 30 05:38	7°♄31'27	9°34'58	retrograde	2954 Dec 26 23:44	24°♄51'42	
minimum elong	2946 Aug 30 05:19	7°♄31'25	9°34'58	opposition	2955 Mar 14 09:03	23°♄34'47	13°42'50
retrograde	2946 Dec 11 03:13	9°♄37'50		min. Earth dist.	2955 Mar 17 04:42	23°♄30'23	32.28837 AU
opposition	2947 Feb 27 09:13	8°♄24'08	10°21'23	direct	2955 Jun 02 16:40	22°♄15'06	
min. Earth dist.	2947 Mar 02 04:57	8°♄19'56	34.21867 AU	max. Earth dist.	2955 Sep 13 22:43	24°♄29'42	34.11816 AU
direct	2947 May 19 01:38	7°♄08'06		conjunction	2955 Sep 17 03:04	24°♄36'21	13°06'11
max. Earth dist.	2947 Aug 29 04:17	9°♄11'14	36.06199 AU	minimum elong	2955 Sep 17 02:42	24°♄36'19	13°06'11
conjunction	2947 Sep 01 07:37	9°♄17'17	9°59'45	retrograde	2955 Dec 29 08:44	26°♄55'03	
minimum elong	2947 Sep 01 07:18	9°♄17'15	9°59'45	opposition	2956 Mar 15 15:36	25°♄37'41	14°05'52
retrograde	2947 Dec 13 04:18	11°♄24'57		min. Earth dist.	2956 Mar 18 11:27	25°♄33'15	32.05892 AU
opposition	2948 Feb 29 09:16	10°♄10'51	10°47'43	direct	2956 Jun 03 20:32	24°♄17'30	
min. Earth dist.	2948 Mar 03 04:27	10°♄06'40	33.96893 AU	max. Earth dist.	2956 Sep 15 09:17	26°♄33'41	33.88764 AU

conjunction	2956 Sep 18 12:10	26° 11 40'16	13°27'14	conjunction	2964 Oct 06 15:43	14° 15 23'49	15°42'30
minimum elong	2956 Sep 18 11:47	26° 11 40'14	13°27'13	minimum elong	2964 Oct 06 15:25	14° 15 23'47	15°42'29
retrograde	2956 Dec 30 16:27	29° 11 00'20		retrograde	2965 Jan 18 05:28	16° 15 54'40	
opposition	2957 Mar 17 23:15	27° 11 42'32	14°28'10	opposition	2965 Apr 04 19:04	15° 15 33'54	16°50'16
min. Earth dist.	2957 Mar 20 18:35	27° 11 38'05	31.83373 AU	min. Earth dist.	2965 Apr 07 06:18	15° 15 29'50	30.25938 AU
direct	2957 Jun 06 03:41	26° 11 21'51		direct	2965 Jun 23 15:42	14° 15 10'02	
max. Earth dist.	2957 Sep 17 18:57	28° 11 39'29	33.66201 AU	max. Earth dist.	2965 Oct 06 15:58	16° 15 39'51	32.09306 AU
conjunction	2957 Sep 20 21:40	28° 11 46'06	13°47'33	conjunction	2965 Oct 09 07:37	16° 15 45'55	15°54'11
minimum elong	2957 Sep 20 21:17	28° 11 46'04	13°47'34	minimum elong	2965 Oct 09 07:22	16° 15 45'53	15°54'11
	2957 Oct 27 07:35	0° 15		retrograde	2966 Jan 20 20:10	19° 15 17'57	
retrograde	2958 Jan 02 03:53	1° 15 07'33		opposition	2966 Apr 07 10:35	17° 15 56'53	17°02'20
	2958 Mar 13 13:49	30° 15 R 11		min. Earth dist.	2966 Apr 09 20:44	17° 15 52'52	30.09221 AU
opposition	2958 Mar 20 07:36	29° 15 49'18	14°49'40	direct	2966 Jun 26 06:28	16° 15 32'41	
min. Earth dist.	2958 Mar 23 01:45	29° 15 44'55	31.61391 AU	max. Earth dist.	2966 Oct 09 09:11	19° 15 03'46	31.92761 AU
direct	2958 Jun 08 11:10	28° 15 28'08					
	2958 Aug 28 14:45	0° 15		conjunction	2966 Oct 12 00:10	19° 15 09'49	16°04'28
max. Earth dist.	2958 Sep 20 06:52	0° 15 47'21	33.44203 AU	minimum elong	2966 Oct 11 23:55	19° 15 09'48	16°04'28
conjunction	2958 Sep 23 08:11	0° 15 53'54	14°07'03	retrograde	2967 Jan 23 14:17	21° 15 43'00	
minimum elong	2958 Sep 23 07:49	0° 15 53'52	14°07'02	opposition	2967 Apr 10 02:36	20° 15 21'38	17°12'51
retrograde	2959 Jan 04 14:13	3° 15 16'44		min. Earth dist.	2967 Apr 12 10:52	20° 15 17'44	29.93215 AU
opposition	2959 Mar 22 16:51	1° 15 58'03	15°10'16	direct	2967 Jun 28 21:27	18° 15 57'06	
min. Earth dist.	2959 Mar 25 10:51	1° 15 53'39	31.40012 AU	max. Earth dist.	2967 Oct 12 04:53	21° 15 29'34	31.76956 AU
direct	2959 Jun 10 18:44	0° 15 36'25					
max. Earth dist.	2959 Sep 22 19:22	2° 15 57'10	33.22870 AU	conjunction	2967 Oct 14 17:33	21° 15 35'25	16°13'18
conjunction	2959 Sep 25 19:26	3° 15 03'41	14°25'39	minimum elong	2967 Oct 14 17:20	21° 15 35'24	16°13'18
minimum elong	2959 Sep 25 19:04	3° 15 03'39	14°25'39	retrograde	2968 Jan 26 06:34	24° 15 09'42	
retrograde	2960 Jan 07 04:02	5° 15 27'53		opposition	2968 Apr 11 19:38	22° 15 48'01	17°21'47
opposition	2960 Mar 24 02:57	4° 15 08'48	15°29'52	min. Earth dist.	2968 Apr 14 03:11	22° 15 44'09	29.77950 AU
min. Earth dist.	2960 Mar 26 19:00	4° 15 04'30	31.19307 AU	direct	2968 Jun 30 12:49	21° 15 23'10	
direct	2960 Jun 12 05:52	2° 15 46'44		max. Earth dist.	2968 Oct 14 00:15	23° 15 56'51	31.61971 AU
max. Earth dist.	2960 Sep 24 08:16	5° 15 09'02	33.02221 AU	conjunction	2968 Oct 16 11:12	24° 15 02'36	16°20'34
conjunction	2960 Sep 27 07:31	5° 15 15'31	14°43'15	minimum elong	2968 Oct 16 11:00	24° 15 02'34	16°20'34
minimum elong	2960 Sep 27 07:09	5° 15 15'29	14°43'15	retrograde	2969 Jan 28 01:44	26° 15 37'53	
retrograde	2961 Jan 08 17:36	7° 15 41'05		opposition	2969 Apr 14 13:12	25° 15 15'54	17°29'01
opposition	2961 Mar 26 14:03	6° 15 21'38	15°48'23	min. Earth dist.	2969 Apr 16 18:04	25° 15 12'13	29.63514 AU
min. Earth dist.	2961 Mar 29 05:59	6° 15 17'20	30.99296 AU	direct	2969 Jul 03 07:45	23° 15 50'46	
direct	2961 Jun 14 15:50	4° 15 59'11		max. Earth dist.	2969 Oct 16 20:53	26° 15 25'41	31.47867 AU
max. Earth dist.	2961 Sep 26 23:15	7° 15 23'06	32.82295 AU	conjunction	2969 Oct 19 05:31	26° 15 31'13	16°26'14
conjunction	2961 Sep 29 20:23	7° 15 29'27	14°59'49	minimum elong	2969 Oct 19 05:23	26° 15 31'12	16°26'14
minimum elong	2961 Sep 29 20:03	7° 15 29'25	14°59'50	retrograde	2970 Jan 30 19:37	29° 15 07'27	
retrograde	2962 Jan 11 07:25	9° 15 56'23		opposition	2970 Apr 17 07:32	27° 15 45'11	17°34'27
opposition	2962 Mar 29 01:56	8° 15 36'36	16°05'46	min. Earth dist.	2970 Apr 19 11:26	27° 15 41'33	29.49986 AU
min. Earth dist.	2962 Mar 31 15:50	8° 15 32'24	30.79977 AU	direct	2970 Jul 06 01:18	26° 15 19'47	
direct	2962 Jun 17 03:55	7° 15 13'46		max. Earth dist.	2970 Oct 19 18:13	28° 15 55'52	31.34755 AU
max. Earth dist.	2962 Sep 29 13:10	9° 15 39'08	32.63054 AU	conjunction	2970 Oct 22 00:06	29° 15 01'10	16°30'11
conjunction	2962 Oct 02 09:55	9° 15 45'31	15°15'15	minimum elong	2970 Oct 21 23:58	29° 15 01'09	16°30'11
minimum elong	2962 Oct 02 09:35	9° 15 45'29	15°15'14		2970 Nov 16 11:29	0° 15	
retrograde	2963 Jan 13 22:25	12° 15 13'47		retrograde	2971 Feb 02 15:32	1° 15 38'15	
opposition	2963 Mar 31 14:47	10° 15 53'40	16°21'55	opposition	2971 Apr 20 02:22	0° 15 15'45	17°38'02
min. Earth dist.	2963 Apr 03 04:26	10° 15 49'28	30.61326 AU	min. Earth dist.	2971 Apr 22 02:56	0° 15 12'20	29.37446 AU
direct	2963 Jun 19 14:24	9° 15 30'29			2971 Apr 29 11:37	30° 15 R 11	
max. Earth dist.	2963 Oct 02 06:08	11° 15 57'27	32.44479 AU	direct	2971 Jul 08 21:01	28° 15 50'07	
conjunction	2963 Oct 05 00:29	12° 15 03'39	15°29'30		2971 Sep 13 08:23	0° 15	
minimum elong	2963 Oct 05 00:11	12° 15 03'38	15°29'30	max. Earth dist.	2971 Oct 22 15:29	1° 15 27'14	31.22689 AU
retrograde	2964 Jan 16 13:16	14° 15 33'14		conjunction	2971 Oct 24 19:14	1° 15 32'21	16°32'22
opposition	2964 Apr 02 04:26	13° 15 12'48	16°36'46	minimum elong	2971 Oct 24 19:10	1° 15 32'21	16°32'22
min. Earth dist.	2964 Apr 04 16:39	13° 15 08'40	30.43305 AU	retrograde	2972 Feb 05 11:46	4° 15 10'14	
direct	2964 Jun 21 03:23	11° 15 49'16		opposition	2972 Apr 21 21:51	2° 15 47'31	17°39'41
max. Earth dist.	2964 Oct 03 21:35	14° 15 17'34	32.26559 AU	min. Earth dist.	2972 Apr 23 20:53	2° 15 44'13	29.25971 AU
				direct	2972 Jul 10 15:38	1° 15 21'44	
				max. Earth dist.	2972 Oct 24 14:39	3° 15 59'57	31.11759 AU

conjunction	2972 Oct 26 14:47	4°M04'44	16°32'44	conjunction	2980 Nov 16 10:49	24°M51'24	15°28'00
minimum elong	2972 Oct 26 14:44	4°M04'43	16°32'43	minimum elong	2980 Nov 16 11:03	24°M51'26	15°28'00
retrograde	2973 Feb 07 08:05	6°M43'19		retrograde	2981 Feb 28 02:40	27°M32'11	
opposition	2973 Apr 24 17:55	5°M20'27	17°39'20	opposition	2981 May 15 23:08	26°M08'55	16°23'31
min. Earth dist.	2973 Apr 26 13:35	5°M17'22	29.15597 AU	min. Earth dist.	2981 May 16 22:59	26°M07'14	28.70478 AU
direct	2973 Jul 13 12:51	3°M54'32		direct	2981 Aug 03 15:16	24°M42'57	
max. Earth dist.	2973 Oct 27 12:25	6°M33'37	31.01969 AU	max. Earth dist.	2981 Nov 18 08:40	27°M25'32	30.62351 AU
conjunction	2973 Oct 29 10:28	6°M38'12	16°31'13	conjunction	2981 Nov 19 07:04	27°M27'48	15°11'36
minimum elong	2973 Oct 29 10:29	6°M38'12	16°31'13	minimum elong	2981 Nov 19 07:21	27°M27'50	15°11'36
retrograde	2974 Feb 10 04:28	9°M17'27			2982 Feb 09 11:09	0°J	
opposition	2974 Apr 27 14:26	7°M54'27	17°36'57	retrograde	2982 Mar 02 23:08	0°J08'22	
min. Earth dist.	2974 Apr 29 08:05	7°M51'31	29.06341 AU		2982 Mar 24 22:00	30°RM	
direct	2974 Jul 16 07:46	6°M28'27		opposition	2982 May 18 21:13	28°M45'06	16°05'07
max. Earth dist.	2974 Oct 30 12:37	9°M08'30	30.93314 AU	min. Earth dist.	2982 May 19 17:05	28°M43'42	28.69479 AU
conjunction	2974 Nov 01 06:43	9°M12'43	16°27'49	direct	2982 Aug 06 14:45	27°M19'12	
minimum elong	2974 Nov 01 06:44	9°M12'43	16°27'49		2982 Nov 20 15:00	0°J	
retrograde	2975 Feb 13 01:12	11°M52'29		max. Earth dist.	2982 Nov 21 07:56	0°J01'43	30.62206 AU
opposition	2975 Apr 30 11:17	10°M29'25	17°32'32	conjunction	2982 Nov 22 03:10	0°J03'39	14°53'27
min. Earth dist.	2975 May 02 02:16	10°M26'40	28.98154 AU	minimum elong	2982 Nov 22 03:27	0°J03'41	14°53'27
direct	2975 Jul 19 05:09	9°M03'23		retrograde	2983 Mar 05 18:16	2°J43'54	
max. Earth dist.	2975 Nov 02 10:46	11°M44'03	30.85752 AU	opposition	2983 May 21 19:09	1°J20'39	15°44'49
conjunction	2975 Nov 04 03:07	11°M48'06	16°22'32	min. Earth dist.	2983 May 22 12:51	1°J19'25	28.69621 AU
minimum elong	2975 Nov 04 03:13	11°M48'07	16°22'32		2983 Jul 23 00:20	30°RM	
retrograde	2976 Feb 15 22:49	14°M28'20		direct	2983 Aug 09 12:55	29°M54'52	
opposition	2976 May 02 08:40	13°M05'12	17°26'04		2983 Aug 26 23:09	0°J	
min. Earth dist.	2976 May 03 21:01	13°M02'38	28.91023 AU	conjunction	2983 Nov 24 22:56	2°J38'48	14°33'35
direct	2976 Jul 21 01:15	11°M39'07		minimum elong	2983 Nov 24 23:16	2°J38'50	14°33'34
max. Earth dist.	2976 Nov 04 11:18	14°M20'31	30.79251 AU	max. Earth dist.	2983 Nov 24 07:30	2°J37'15	30.63262 AU
conjunction	2976 Nov 05 23:47	14°M24'12	16°15'21	retrograde	2984 Mar 07 14:00	5°J18'39	
minimum elong	2976 Nov 05 23:53	14°M24'12	16°15'22	opposition	2984 May 23 17:01	3°J55'28	15°22'41
	2976 Nov 20 21:30	15°M		min. Earth dist.	2984 May 24 06:41	3°J54'30	28.70953 AU
retrograde	2977 Feb 17 17:56	17°M04'46		direct	2984 Aug 11 13:17	2°J29'50	
opposition	2977 May 05 06:31	15°M41'35	17°17'34	conjunction	2984 Nov 26 18:11	5°J13'11	14°12'02
min. Earth dist.	2977 May 06 16:43	15°M39'10	28.84900 AU	minimum elong	2984 Nov 26 18:31	5°J13'13	14°12'02
	2977 May 30 20:41	15°RM		max. Earth dist.	2984 Nov 26 05:46	5°J11'56	30.65545 AU
direct	2977 Jul 23 23:14	14°M15'31		retrograde	2985 Mar 10 09:15	7°J52'34	
	2977 Sep 13 19:14	15°M		opposition	2985 May 26 14:40	6°J29'29	14°58'47
max. Earth dist.	2977 Nov 07 09:50	16°M57'18	30.73795 AU	min. Earth dist.	2985 May 27 01:22	6°J28'44	28.73528 AU
conjunction	2977 Nov 08 20:29	17°M00'48	16°06'18	direct	2985 Aug 14 10:21	5°J04'02	
minimum elong	2977 Nov 08 20:39	17°M00'49	16°06'18	conjunction	2985 Nov 29 13:13	7°J46'43	13°48'53
retrograde	2978 Feb 20 15:37	19°M41'35		minimum elong	2985 Nov 29 13:35	7°J46'46	13°48'53
opposition	2978 May 08 04:23	18°M18'22	17°07'03	max. Earth dist.	2985 Nov 29 05:07	7°J45'55	30.69094 AU
min. Earth dist.	2978 May 09 11:24	18°M16'11	28.79791 AU	retrograde	2986 Mar 13 04:10	10°J25'33	
direct	2978 Jul 26 20:36	16°M52'18		opposition	2986 May 29 11:49	9°J02'38	14°33'10
max. Earth dist.	2978 Nov 10 10:23	19°M34'33	30.69366 AU	min. Earth dist.	2986 May 29 18:59	9°J02'08	28.77322 AU
conjunction	2978 Nov 11 17:23	19°M37'41	15°55'22	direct	2986 Aug 17 09:41	7°J37'27	
minimum elong	2978 Nov 11 17:33	19°M37'42	15°55'22	conjunction	2986 Dec 02 07:41	10°J19'23	13°24'13
retrograde	2979 Feb 23 11:09	22°M18'35		minimum elong	2986 Dec 02 08:04	10°J19'26	13°24'13
opposition	2979 May 11 02:38	20°M55'21	16°54'31	max. Earth dist.	2986 Dec 02 02:01	10°J18'49	30.73862 AU
min. Earth dist.	2979 May 12 07:58	20°M53'16	28.75669 AU	retrograde	2987 Mar 16 00:04	12°J57'37	
direct	2979 Jul 29 17:39	19°M29'18		opposition	2987 Jun 01 08:43	11°J34'53	14°05'58
max. Earth dist.	2979 Nov 13 09:21	22°M11'42	30.65970 AU	min. Earth dist.	2987 Jun 01 12:27	11°J34'37	28.82314 AU
conjunction	2979 Nov 14 14:06	22°M14'37	15°42'36	direct	2987 Aug 20 06:59	10°J09'59	
minimum elong	2979 Nov 14 14:20	22°M14'39	15°42'35	conjunction	2987 Dec 05 01:47	12°J51'06	12°58'07
retrograde	2980 Feb 26 07:34	24°M55'31		minimum elong	2987 Dec 05 02:11	12°J51'09	12°58'06
opposition	2980 May 13 00:46	23°M32'15	16°39'59	max. Earth dist.	2987 Dec 05 00:27	12°J50'58	30.79800 AU
min. Earth dist.	2980 May 14 02:26	23°M30'27	28.72555 AU	retrograde	2988 Mar 17 16:32	15°J28'39	
direct	2980 Jul 31 17:20	22°M06'14		opposition	2988 Jun 03 05:19	14°J06'09	13°37'17
max. Earth dist.	2980 Nov 15 09:28	24°M48'50	30.63613 AU	min. Earth dist.	2988 Jun 03 06:24	14°J06'05	28.88422 AU
				direct	2988 Aug 22 04:55	12°J41'33	

conjunction	2988 Dec 06 19:17	15° \mathring{A} 21'47	12°30'42	direct	2996 Sep 11 11:07	2° \mathring{C} 04'00	
minimum elong	2988 Dec 06 19:40	15° \mathring{A} 21'49	12°30'43				
max. Earth dist.	2988 Dec 06 20:03	15° \mathring{A} 21'52	30.86841 AU	conjunction	2996 Dec 25 17:18	4° \mathring{C} 34'43	8°16'10
retrograde	2989 Mar 20 10:56	17° \mathring{A} 58'35		minimum elong	2996 Dec 25 17:38	4° \mathring{C} 34'44	8°16'11
opposition	2989 Jun 06 01:26	16° \mathring{A} 36'19	13°07'14	max. Earth dist.	2996 Dec 26 17:49	4° \mathring{C} 37'02	31.77272 AU
min. Earth dist.	2989 Jun 05 22:48	16° \mathring{A} 36'30	28.95612 AU	retrograde	2997 Apr 08 00:55	7° \mathring{C} 03'26	
direct	2989 Aug 25 01:21	15° \mathring{A} 12'03		opposition	2997 Jun 25 21:31	5° \mathring{C} 43'05	8°30'56
				min. Earth dist.	2997 Jun 24 20:44	5° \mathring{C} 44'44	29.86865 AU
conjunction	2989 Dec 09 12:20	17° \mathring{A} 51'18	12°02'04	direct	2997 Sep 14 04:31	4° \mathring{C} 21'26	
minimum elong	2989 Dec 09 12:43	17° \mathring{A} 51'21	12°02'04				
max. Earth dist.	2989 Dec 09 17:12	17° \mathring{A} 51'47	30.94921 AU	conjunction	2997 Dec 28 04:36	6° \mathring{C} 50'48	7°41'23
retrograde	2990 Mar 23 02:55	20° \mathring{A} 27'18		minimum elong	2997 Dec 28 04:54	6° \mathring{C} 50'50	7°41'22
opposition	2990 Jun 08 21:10	19° \mathring{A} 05'16	12°35'55	max. Earth dist.	2997 Dec 29 07:01	6° \mathring{C} 53'17	31.92738 AU
min. Earth dist.	2990 Jun 08 16:34	19° \mathring{A} 05'35	29.03800 AU	retrograde	2998 Apr 10 13:53	9° \mathring{C} 18'22	
direct	2990 Aug 27 21:33	17° \mathring{A} 41'20		min. Earth dist.	2998 Jun 27 07:33	8° \mathring{C} 00'10	30.02512 AU
				opposition	2998 Jun 28 11:50	7° \mathring{C} 58'19	7°53'28
conjunction	2990 Dec 12 04:46	20° \mathring{A} 19'32	11°32'20	direct	2998 Sep 16 20:09	6° \mathring{C} 37'03	
minimum elong	2990 Dec 12 05:10	20° \mathring{A} 19'34	11°32'20				
max. Earth dist.	2990 Dec 12 11:35	20° \mathring{A} 20'12	31.03979 AU	conjunction	2998 Dec 30 15:23	9° \mathring{C} 05'05	7°06'13
retrograde	2991 Mar 25 18:56	22° \mathring{A} 54'38		minimum elong	2998 Dec 30 15:41	9° \mathring{C} 05'07	7°06'13
opposition	2991 Jun 11 16:08	21° \mathring{A} 32'52	12°03'29	max. Earth dist.	2998 Dec 31 21:38	9° \mathring{C} 07'54	32.09143 AU
min. Earth dist.	2991 Jun 11 07:42	21° \mathring{A} 33'26	29.12941 AU	retrograde	2999 Apr 12 23:14	11° \mathring{C} 31'29	
direct	2991 Aug 30 17:41	20° \mathring{A} 09'15		min. Earth dist.	2999 Jun 29 19:16	10° \mathring{C} 13'44	30.19080 AU
				opposition	2999 Jul 01 01:29	10° \mathring{C} 11'45	7°15'40
conjunction	2991 Dec 14 20:46	22° \mathring{A} 46'21	11°01'36	direct	2999 Sep 19 11:42	8° \mathring{C} 50'55	
minimum elong	2991 Dec 14 21:09	22° \mathring{A} 46'23	11°01'35				
max. Earth dist.	2991 Dec 15 07:04	22° \mathring{A} 47'21	31.13957 AU	conjunction	3000 Jan 02 01:19	11° \mathring{C} 17'36	6°30'47
retrograde	2992 Mar 27 08:24	25° \mathring{A} 20'31		minimum elong	3000 Jan 02 01:35	11° \mathring{C} 17'37	6°30'47
opposition	2992 Jun 13 10:53	23° \mathring{A} 58'58	11°30'01	max. Earth dist.	3000 Jan 03 09:14	11° \mathring{C} 20'33	32.26429 AU
min. Earth dist.	2992 Jun 13 00:40	23° \mathring{A} 59'40	29.22995 AU	retrograde	3000 Apr 15 09:26	13° \mathring{C} 42'51	
direct	2992 Sep 01 12:25	22° \mathring{A} 35'41		min. Earth dist.	3000 Jul 02 04:28	12° \mathring{C} 25'40	30.36522 AU
				opposition	3000 Jul 03 14:25	12° \mathring{C} 23'28	6°37'38
conjunction	2992 Dec 16 11:52	25° \mathring{A} 11'36	10°29'57	direct	3000 Sep 22 01:29	11° \mathring{C} 03'02	
minimum elong	2992 Dec 16 12:15	25° \mathring{A} 11'38	10°29'58				
max. Earth dist.	2992 Dec 17 00:25	25° \mathring{A} 12'49	31.24837 AU	conjunction	3001 Jan 04 10:33	13° \mathring{C} 28'23	5°55'11
retrograde	2993 Mar 29 23:13	27° \mathring{A} 44'45		minimum elong	3001 Jan 04 10:48	13° \mathring{C} 28'25	5°55'11
opposition	2993 Jun 16 04:49	26° \mathring{A} 23'27	10°55'38	max. Earth dist.	3001 Jan 05 21:58	13° \mathring{C} 31'38	32.44516 AU
min. Earth dist.	2993 Jun 15 14:55	26° \mathring{A} 24'23	29.33935 AU	retrograde	3001 Apr 17 17:00	15° \mathring{C} 52'30	
direct	2993 Sep 04 07:01	25° \mathring{A} 00'28		min. Earth dist.	3001 Jul 04 15:26	14° \mathring{C} 35'45	30.54751 AU
				opposition	3001 Jul 06 02:48	14° \mathring{C} 33'27	5°59'29
conjunction	2993 Dec 19 02:25	27° \mathring{A} 35'09	9°57'30	direct	3001 Sep 24 14:53	13° \mathring{C} 13'28	
minimum elong	2993 Dec 19 02:47	27° \mathring{A} 35'11	9°57'29				
max. Earth dist.	2993 Dec 19 17:51	27° \mathring{A} 36'38	31.36583 AU	conjunction	3002 Jan 06 19:11	15° \mathring{C} 37'29	5°19'29
	2994 Mar 11 22:28	0° \mathring{C}		minimum elong	3002 Jan 06 19:23	15° \mathring{C} 37'30	5°19'28
retrograde	2994 Apr 01 12:09	0° \mathring{C} 07'15		max. Earth dist.	3002 Jan 08 08:07	15° \mathring{C} 40'51	32.63332 AU
	2994 Apr 22 14:11	30° \mathring{R} \mathring{A}		retrograde	3002 Apr 20 01:26	18° \mathring{C} 00'26	
opposition	2994 Jun 18 22:01	28° \mathring{A} 46'11	10°20'26	min. Earth dist.	3002 Jul 06 23:36	16° \mathring{C} 44'14	30.73680 AU
min. Earth dist.	2994 Jun 18 06:12	28° \mathring{A} 47'14	29.45769 AU	opposition	3002 Jul 08 14:07	16° \mathring{C} 41'45	5°21'19
direct	2994 Sep 07 00:26	27° \mathring{A} 23'31		direct	3002 Sep 27 03:18	15° \mathring{C} 22'12	
conjunction	2994 Dec 21 16:13	29° \mathring{A} 56'53	9°24'19	conjunction	3003 Jan 09 03:09	17° \mathring{C} 44'52	4°43'46
minimum elong	2994 Dec 21 16:35	29° \mathring{A} 56'56	9°24'20	minimum elong	3003 Jan 09 03:21	17° \mathring{C} 44'53	4°43'47
max. Earth dist.	2994 Dec 22 10:35	29° \mathring{A} 58'39	31.49224 AU	max. Earth dist.	3003 Jan 10 18:31	17° \mathring{C} 48'26	32.82776 AU
	2994 Dec 23 00:35	0° \mathring{C}		retrograde	3003 Apr 22 08:09	20° \mathring{C} 06'41	
retrograde	2995 Apr 04 00:59	2° \mathring{C} 27'53		min. Earth dist.	3003 Jul 09 09:14	18° \mathring{C} 50'54	30.93239 AU
opposition	2995 Jun 21 14:31	1° \mathring{C} 07'02	9°44'32	opposition	3003 Jul 11 01:05	18° \mathring{C} 48'21	4°43'11
min. Earth dist.	2995 Jun 20 19:25	1° \mathring{C} 08'19	29.58503 AU	direct	3003 Sep 29 13:49	17° \mathring{C} 29'14	
	2995 Aug 09 08:22	30° \mathring{R} \mathring{A}					
direct	2995 Sep 09 19:31	29° \mathring{A} 44'42		conjunction	3004 Jan 11 10:24	19° \mathring{C} 50'34	4°08'07
	2995 Oct 10 12:31	0° \mathring{C}		minimum elong	3004 Jan 11 10:34	19° \mathring{C} 50'35	4°08'06
				max. Earth dist.	3004 Jan 13 03:45	19° \mathring{C} 54'17	33.02793 AU
conjunction	2995 Dec 24 05:02	2° \mathring{C} 16'45	8°50'31	retrograde	3004 Apr 23 14:41	22° \mathring{C} 11'14	
minimum elong	2995 Dec 24 05:22	2° \mathring{C} 16'47	8°50'30	min. Earth dist.	3004 Jul 10 16:59	20° \mathring{C} 55'56	31.13342 AU
max. Earth dist.	2995 Dec 25 01:52	2° \mathring{C} 18'44	31.62766 AU	opposition	3004 Jul 12 11:14	20° \mathring{C} 53'15	4°05'11
retrograde	2996 Apr 05 13:57	4° \mathring{C} 46'37		direct	3004 Oct 01 00:58	19° \mathring{C} 34'32	
min. Earth dist.	2996 Jun 22 08:25	3° \mathring{C} 27'28	29.72198 AU				
opposition	2996 Jun 23 06:26	3° \mathring{C} 26'01	9°08'00	conjunction	3005 Jan 12 16:59	21° \mathring{C} 54'33	3°32'35

minimum elong	3005 Jan 12 17:08	21°  54'34	3°32'36	min. Earth dist.	3012 Jul 26 08:58	6°  33'12	32.92100 AU
max. Earth dist.	3005 Jan 14 11:45	21°  58'21	33.23300 AU	opposition	3012 Jul 28 18:08	6°  29'44	0°-47'-23
retrograde	3005 Apr 25 22:04	24°  14'04		direct	3012 Oct 17 14:12	5°  14'13	
min. Earth dist.	3005 Jul 13 00:29	22°  59'11	31.33957 AU				
opposition	3005 Jul 14 20:39	22°  56'24	3°27'22	conjunction	3013 Jan 27 20:36	7°  24'01	-1°00'-57
direct	3005 Oct 03 08:54	21°  38'06		minimum elong	3013 Jan 27 20:33	7°  24'01	1°00'57
				max. Earth dist.	3013 Jan 30 06:14	7°  28'51	35.04414 AU
conjunction	3006 Jan 14 22:58	23°  56'47	2°57'15	retrograde	3013 May 10 21:17	9°  34'39	
minimum elong	3006 Jan 14 23:05	23°  56'47	2°57'14	min. Earth dist.	3013 Jul 28 11:19	8°  23'07	33.16610 AU
max. Earth dist.	3006 Jan 16 20:09	24°  00'46	33.44276 AU	opposition	3013 Jul 30 21:49	8°  19'36	-1°-21'-50
retrograde	3006 Apr 28 02:58	26°  15'08		direct	3013 Oct 19 18:08	7°  04'29	
min. Earth dist.	3006 Jul 15 07:46	25°  00'39	31.55024 AU				
opposition	3006 Jul 17 05:19	24°  57'47	2°49'48	conjunction	3014 Jan 29 21:10	9°  13'09	-1°-33'-11
direct	3006 Oct 05 19:48	23°  39'53		minimum elong	3014 Jan 29 21:07	9°  13'09	1°33'13
				max. Earth dist.	3014 Feb 01 07:20	9°  17'58	35.29050 AU
conjunction	3007 Jan 17 04:02	25°  57'14	2°22'08	retrograde	3014 May 13 00:16	11°  22'45	
minimum elong	3007 Jan 17 04:08	25°  57'14	2°22'09	min. Earth dist.	3014 Jul 30 12:32	10°  11'40	33.41444 AU
max. Earth dist.	3007 Jan 19 01:56	26°  01'15	33.65681 AU	opposition	3014 Aug 02 01:00	10°  08'03	-1°-55'-41
retrograde	3007 Apr 30 09:44	28°  14'25		direct	3014 Oct 21 19:12	8°  53'22	
min. Earth dist.	3007 Jul 17 13:04	27°  00'22	31.76570 AU				
opposition	3007 Jul 19 13:10	26°  57'22	2°12'34	conjunction	3015 Jan 31 21:19	11°  00'53	-2°-4'-53
direct	3007 Oct 08 04:41	25°  39'51		minimum elong	3015 Jan 31 21:15	11°  00'53	2°04'54
				max. Earth dist.	3015 Feb 03 09:39	11°  05'51	35.53941 AU
conjunction	3008 Jan 19 08:32	27°  55'53	1°47'20	retrograde	3015 May 14 23:42	13°  09'29	
minimum elong	3008 Jan 19 08:36	27°  55'53	1°47'19	min. Earth dist.	3015 Aug 01 15:01	11°  58'45	33.66502 AU
max. Earth dist.	3008 Jan 21 09:21	28°  00'07	33.87552 AU	opposition	3015 Aug 04 03:38	11°  55'08	-2°-28'-56
	3008 Apr 03 12:06	0° 		direct	3015 Oct 23 22:59	10°  40'51	
retrograde	3008 May 01 13:22	0°  11'55					
	3008 May 30 03:59	30°  R 		conjunction	3016 Feb 02 20:55	12°  47'15	-2°-36'-2
min. Earth dist.	3008 Jul 18 19:25	28°  58'13	31.98617 AU	minimum elong	3016 Feb 02 20:49	12°  47'15	2°36'03
opposition	3008 Jul 20 20:28	28°  55'10	1°35'40	max. Earth dist.	3016 Feb 05 09:14	12°  52'10	35.79012 AU
direct	3008 Oct 09 13:41	27°  38'02		retrograde	3016 May 16 00:16	14°  54'51	
				min. Earth dist.	3016 Aug 02 15:01	13°  44'32	33.91726 AU
conjunction	3009 Jan 20 12:06	29°  52'45	1°12'51	opposition	3016 Aug 05 05:41	13°  40'50	-3°-1'-34
minimum elong	3009 Jan 20 12:09	29°  52'46	1°12'51	direct	3016 Oct 25 02:21	12°  26'55	
max. Earth dist.	3009 Jan 22 13:57	29°  57'03	34.09926 AU				
	3009 Jan 24 00:10	0° 		conjunction	3017 Feb 03 20:01	14°  32'14	-3°-6'-36
retrograde	3009 May 03 16:11	2°  07'39		minimum elong	3017 Feb 03 19:55	14°  32'13	3°06'36
min. Earth dist.	3009 Jul 20 22:44	0°  54'27	32.21203 AU	max. Earth dist.	3017 Feb 06 10:05	14°  37'15	36.04186 AU
opposition	3009 Jul 23 02:53	0°  51'13	0°59'11		3017 Feb 18 05:25	15° 	
	3009 Aug 29 21:26	30°  R 		retrograde	3017 May 17 22:52	16°  38'51	
direct	3009 Oct 11 21:31	29°  34'28		min. Earth dist.	3017 Aug 04 16:43	15°  28'49	34.17040 AU
	3009 Nov 22 07:46	0° 		opposition	3017 Aug 07 07:16	15°  25'08	-3°-33'-32
					3017 Aug 25 09:37	15°  R 	
conjunction	3010 Jan 22 15:13	1°  47'56	0°38'44	direct	3017 Oct 27 05:14	14°  11'36	
minimum elong	3010 Jan 22 15:14	1°  47'56	0°38'44		3017 Dec 25 13:06	15° 	
max. Earth dist.	3010 Jan 24 19:40	1°  52'25	34.32814 AU				
retrograde	3010 May 05 16:59	4°  01'42		conjunction	3018 Feb 05 18:43	16°  15'48	-3°-36'-35
min. Earth dist.	3010 Jul 23 03:24	2°  48'53	32.44333 AU	minimum elong	3018 Feb 05 18:35	16°  15'47	3°36'36
opposition	3010 Jul 25 08:34	2°  45'37	0°23'09	max. Earth dist.	3018 Feb 08 08:59	16°  20'49	36.29417 AU
direct	3010 Oct 14 04:38	1°  29'15		retrograde	3018 May 19 19:33	18°  21'26	
				min. Earth dist.	3018 Aug 06 15:56	17°  11'47	34.42392 AU
conjunction	3011 Jan 24 17:39	3°  41'29	0°05'06	opposition	3018 Aug 09 07:57	17°  08'01	-4°-4'-52
minimum elong	3011 Jan 24 17:40	3°  41'29	0°05'07	direct	3018 Oct 29 07:51	15°  54'49	
behind sun begin	3011 Jan 24 11:29	3°  40'59					
behind sun end	3011 Jan 24 23:51	3°  41'58		conjunction	3019 Feb 07 16:45	17°  57'56	-4°-5'-57
max. Earth dist.	3011 Jan 26 23:29	3°  46'03	34.56229 AU	minimum elong	3019 Feb 07 16:37	17°  57'55	4°05'58
desc. node	3011 Mar 21 00:13	5°  20'56		max. Earth dist.	3019 Feb 10 07:41	18°  02'58	36.54667 AU
retrograde	3011 May 07 18:11	5°  54'10		retrograde	3019 May 21 16:50	20°  02'36	
min. Earth dist.	3011 Jul 25 05:55	4°  41'49	32.67977 AU	min. Earth dist.	3019 Aug 08 15:52	18°  53'14	34.67802 AU
opposition	3011 Jul 27 13:35	4°  38'25	0°-12'-22	opposition	3019 Aug 11 08:22	18°  49'27	-4°-35'-31
direct	3011 Oct 16 10:43	3°  22'28		direct	3019 Oct 31 08:11	17°  36'36	
conjunction	3012 Jan 26 19:19	5°  33'29	0°-28'-12	conjunction	3020 Feb 09 14:12	19°  38'38	-4°-34'-44
minimum elong	3012 Jan 26 19:18	5°  33'29	0°28'14	minimum elong	3020 Feb 09 14:03	19°  38'37	4°34'45
max. Earth dist.	3012 Jan 29 02:50	5°  38'09	34.80108 AU	max. Earth dist.	3020 Feb 12 06:32	19°  43'44	36.79976 AU
retrograde	3012 May 08 20:11	7°  45'08		retrograde	3020 May 22 13:22	21°  42'20	

min. Earth dist.	3020 Aug 09 14:54	20° 33 '15	34.93284 AU	min. Earth dist.	3028 Aug 22 11:02	3° 10 '06	37.01222 AU
opposition	3020 Aug 12 08:05	20° 29 '27	-5°-5'-30	opposition	3028 Aug 25 10:39	3° 06 '06	-8°-40'-10
direct	3020 Nov 01 08:31	19° 16 '55		direct	3028 Nov 14 10:40	1° 56 '19	
conjunction	3021 Feb 10 11:03	21° 17 '53	-5°-2'-52	conjunction	3029 Feb 22 18:09	3° 50 '03	-8°-24'-54
minimum elong	3021 Feb 10 10:54	21° 17 '53	5°02'53	minimum elong	3029 Feb 22 17:57	3° 50 '02	8°24'55
max. Earth dist.	3021 Feb 13 03:32	21° 22 '58	37.05371 AU	max. Earth dist.	3029 Feb 25 16:58	3° 55 '19	39.11992 AU
retrograde	3021 May 24 11:38	23° 20 '40		retrograde	3029 Jun 05 20:14	5° 46 '22	
min. Earth dist.	3021 Aug 11 12:17	22° 11 '55	35.18906 AU	min. Earth dist.	3029 Aug 24 07:12	4° 40 '03	37.27081 AU
opposition	3021 Aug 14 07:05	22° 08 '03	-5°-34'-48	opposition	3029 Aug 27 05:50	4° 36 '08	-9°-3'-54
direct	3021 Nov 03 06:13	20° 55 '50		direct	3029 Nov 16 06:05	3° 26 '39	
conjunction	3022 Feb 12 07:33	22° 55 '48	-5°-30'-23	conjunction	3030 Feb 24 11:21	5° 19 '34	-8°-47'-18
minimum elong	3022 Feb 12 07:23	22° 55 '47	5°30'24	minimum elong	3030 Feb 24 11:08	5° 19 '33	8°47'18
max. Earth dist.	3022 Feb 15 02:01	23° 00 '59	37.30906 AU	max. Earth dist.	3030 Feb 27 09:16	5° 24 '45	39.37539 AU
retrograde	3022 May 26 07:44	24° 57 '41		retrograde	3030 Jun 07 14:06	7° 15 '07	
min. Earth dist.	3022 Aug 13 10:48	23° 49 '11	35.44677 AU	min. Earth dist.	3030 Aug 26 00:57	6° 09 '06	37.52719 AU
opposition	3022 Aug 16 05:39	23° 45 '20	-6°-3'-23	opposition	3030 Aug 29 00:36	6° 05 '09	-9°-26'-58
direct	3022 Nov 05 05:48	22° 33 '27		direct	3030 Nov 18 00:51	4° 55 '57	
conjunction	3023 Feb 14 03:21	24° 32 '27	-5°-57'-15	conjunction	3031 Feb 26 04:02	6° 48 '03	-9°-9'-5
minimum elong	3023 Feb 14 03:11	24° 32 '26	5°57'16	minimum elong	3031 Feb 26 03:50	6° 48 '02	9°09'07
max. Earth dist.	3023 Feb 16 21:45	24° 37 '36	37.56595 AU	max. Earth dist.	3031 Mar 01 02:23	6° 53 '13	39.62847 AU
retrograde	3023 May 28 04:37	26° 33 '27		retrograde	3031 Jun 09 04:38	8° 42 '51	
min. Earth dist.	3023 Aug 15 06:44	25° 25 '21	35.70612 AU	min. Earth dist.	3031 Aug 27 20:12	7° 37 '01	37.78140 AU
opposition	3023 Aug 18 03:38	25° 21 '24	-6°-31'-16	opposition	3031 Aug 30 19:08	7° 33 '06	-9°-49'-23
direct	3023 Nov 07 04:05	24° 09 '51		direct	3031 Nov 19 21:09	6° 24 '11	
conjunction	3024 Feb 15 22:50	26° 07 '55	-6°-23'-28	conjunction	3032 Feb 27 20:28	8° 15 '28	-9°-30'-16
minimum elong	3024 Feb 15 22:39	26° 07 '55	6°23'29	minimum elong	3032 Feb 27 20:15	8° 15 '27	9°30'16
max. Earth dist.	3024 Feb 18 18:54	26° 13 '10	37.82427 AU	max. Earth dist.	3032 Mar 01 19:09	8° 20 '38	39.87963 AU
retrograde	3024 May 28 23:18	28° 08 '06		retrograde	3032 Jun 09 18:05	10° 09 '31	
min. Earth dist.	3024 Aug 16 04:25	27° 00 '17	35.96691 AU	min. Earth dist.	3032 Aug 28 13:39	9° 03 '54	38.03374 AU
opposition	3024 Aug 19 01:16	26° 56 '21	-6°-58'-27	opposition	3032 Aug 31 13:00	8° 59 '59	-10°-11'-9
direct	3024 Nov 08 02:12	25° 45 '10		direct	3032 Nov 20 17:53	7° 51 '18	
conjunction	3025 Feb 16 17:52	27° 42 '19	-6°-49'-2	conjunction	3033 Feb 28 12:17	9° 41 '46	-9°-50'-50
minimum elong	3025 Feb 16 17:41	27° 42 '18	6°49'03	minimum elong	3033 Feb 28 12:05	9° 41 '46	9°50'52
max. Earth dist.	3025 Feb 19 14:31	27° 47 '34	38.08379 AU	max. Earth dist.	3033 Mar 03 10:37	9° 46 '53	40.12914 AU
retrograde	3025 May 30 16:23	29° 41 '41		retrograde	3033 Jun 11 11:05	11° 35 '06	
min. Earth dist.	3025 Aug 18 00:02	28° 34 '14	36.22849 AU	min. Earth dist.	3033 Aug 30 06:39	10° 29 '42	38.28495 AU
opposition	3025 Aug 20 22:14	28° 30 '15	-7°-24'-55	opposition	3033 Sep 02 06:32	10° 25 '46	-10°-32'-15
direct	3025 Nov 10 01:03	27° 19 '25		direct	3033 Nov 22 10:32	9° 17 '20	
conjunction	3026 Feb 18 12:26	29° 15 '41	-7°-13'-58	conjunction	3034 Mar 02 03:55	11° 07 '01	-10°-10'-47
minimum elong	3026 Feb 18 12:14	29° 15 '40	7°13'59	minimum elong	3034 Mar 02 03:42	11° 07 '00	10°10'47
max. Earth dist.	3026 Feb 21 09:26	29° 20 '56	38.34366 AU	max. Earth dist.	3034 Mar 05 03:29	11° 12 '11	40.37770 AU
	3026 Mar 15 10:31	0° 14 '16		retrograde	3034 Jun 13 01:57	12° 59 '38	
retrograde	3026 Jun 01 11:46	1° 14 '16		min. Earth dist.	3034 Sep 01 00:04	11° 54 '25	38.53530 AU
min. Earth dist.	3026 Aug 19 20:07	0° 07 '08	36.49041 AU	opposition	3034 Sep 03 23:30	11° 50 '31	-10°-52'-41
opposition	3026 Aug 22 18:45	0° 03 '09	-7°-50'-42	direct	3034 Nov 24 04:28	10° 42 '20	
	3026 Aug 25 02:40	30° 52 '41					
direct	3026 Nov 11 20:38	28° 52 '41		conjunction	3035 Mar 03 19:03	12° 31 '16	-10°-30'-7
	3027 Jan 23 21:35	0° 14 '16		minimum elong	3035 Mar 03 18:51	12° 31 '15	10°30'08
				max. Earth dist.	3035 Mar 06 18:00	12° 36 '21	40.62573 AU
conjunction	3027 Feb 20 06:46	0° 48 '06	-7°-38'-14	retrograde	3035 Jun 14 19:07	14° 23 '11	
minimum elong	3027 Feb 20 06:35	0° 48 '05	7°38'15	min. Earth dist.	3035 Sep 02 15:21	13° 18 '15	38.78528 AU
max. Earth dist.	3027 Feb 23 04:58	0° 53 '24	38.60350 AU	opposition	3035 Sep 05 16:11	13° 14 '18	-11°-12'-29
retrograde	3027 Jun 03 05:44	2° 45 '55		direct	3035 Nov 25 19:08	12° 06 '22	
min. Earth dist.	3027 Aug 21 16:21	1° 39 '04	36.75182 AU				
opposition	3027 Aug 24 14:54	1° 35 '06	-8°-15'-46	conjunction	3036 Mar 04 09:49	13° 54 '35	-10°-48'-50
direct	3027 Nov 13 16:49	0° 24 '59		minimum elong	3036 Mar 04 09:36	13° 54 '34	10°48'51
				max. Earth dist.	3036 Mar 07 10:01	13° 59 '43	40.87331 AU
conjunction	3028 Feb 22 00:29	2° 19 '33	-8°-1'-53	retrograde	3036 Jun 15 10:31	15° 08 '49	
minimum elong	3028 Feb 22 00:16	2° 19 '32	8°01'53	min. Earth dist.	3036 Sep 03 08:24	14° 41 '04	39.03478 AU
max. Earth dist.	3028 Feb 24 22:05	2° 24 '46	38.86246 AU	opposition	3036 Sep 06 08:35	14° 37 '10	-11°-31'-37
retrograde	3028 Jun 04 02:10	4° 16 '37		direct	3036 Nov 26 11:09	13° 29 '32	

conjunction	3037 Mar 06 00:24	15° ✕ 17'02	-11°-6'-57	retrograde	3045 Jun 27 09:19	27° ✕ 36'40	
minimum elong	3037 Mar 06 00:11	15° ✕ 17'01	11°06'59	min. Earth dist.	3045 Sep 15 21:28	26° ✕ 33'47	41.18583 AU
max. Earth dist.	3037 Mar 09 00:30	15° ✕ 22'08	41.12039 AU	opposition	3045 Sep 18 20:07	26° ✕ 30'05	-13°-57'00
retrograde	3037 Jun 16 23:28	17° ✕ 07'37		direct	3045 Dec 09 02:05	25° ✕ 24'42	
min. Earth dist.	3037 Sep 04 23:13	16° ✕ 03'10	39.28345 AU				
opposition	3037 Sep 08 00:18	15° ✕ 59'14	-11°-50'-6	conjunction	3046 Mar 17 23:00	27° ✕ 06'38	-13°-25'-1
direct	3037 Nov 28 04:02	14° ✕ 51'51		minimum elong	3046 Mar 17 22:51	27° ✕ 06'37	13°25'02
				max. Earth dist.	3046 Mar 20 21:54	27° ✕ 11'25	43.24127 AU
conjunction	3038 Mar 07 14:33	16° ✕ 38'41	-11°-24'-29	retrograde	3046 Jun 28 22:25	28° ✕ 52'05	
minimum elong	3038 Mar 07 14:21	16° ✕ 38'40	11°24'29	min. Earth dist.	3046 Sep 17 11:29	27° ✕ 49'18	41.41031 AU
max. Earth dist.	3038 Mar 10 14:36	16° ✕ 43'46	41.36639 AU	opposition	3046 Sep 20 09:09	27° ✕ 45'41	-14°-10'-23
retrograde	3038 Jun 18 13:04	18° ✕ 28'40		direct	3046 Dec 10 14:32	26° ✕ 40'31	
min. Earth dist.	3038 Sep 06 15:07	17° ✕ 24'26	39.53099 AU				
opposition	3038 Sep 09 15:58	17° ✕ 20'31	-12°-7'-59	conjunction	3047 Mar 19 10:37	28° ✕ 21'52	-13°-37'-45
direct	3038 Nov 29 20:26	16° ✕ 13'26		minimum elong	3047 Mar 19 10:26	28° ✕ 21'52	13°37'45
				max. Earth dist.	3047 Mar 22 08:33	28° ✕ 26'34	43.46301 AU
conjunction	3039 Mar 09 04:28	17° ✕ 59'37	-11°-41'-26		3047 Jun 06 11:06	0° ∇	
minimum elong	3039 Mar 09 04:16	17° ✕ 59'36	11°41'27	retrograde	3047 Jun 30 11:58	0° ∇ 06'48	
max. Earth dist.	3039 Mar 12 05:22	18° ✕ 04'43	41.61099 AU		3047 Jul 24 15:10	30° ℞ ✕	
retrograde	3039 Jun 20 02:15	19° ✕ 49'01		min. Earth dist.	3047 Sep 18 23:10	29° ✕ 04'15	41.63299 AU
min. Earth dist.	3039 Sep 08 06:45	18° ✕ 44'59	39.77662 AU	opposition	3047 Sep 21 21:53	29° ✕ 00'36	-14°-23'-13
opposition	3039 Sep 11 07:15	18° ✕ 41'07	-12°-25'-15	direct	3047 Dec 12 01:05	27° ✕ 55'38	
direct	3039 Dec 01 12:53	17° ✕ 34'19					
				conjunction	3048 Mar 19 22:09	29° ✕ 36'28	-13°-49'-58
conjunction	3040 Mar 09 18:07	19° ✕ 19'51	-11°-57'-48	minimum elong	3048 Mar 19 22:00	29° ✕ 36'27	13°49'59
minimum elong	3040 Mar 09 17:56	19° ✕ 19'50	11°57'49	max. Earth dist.	3048 Mar 22 20:34	29° ✕ 41'09	43.68299 AU
max. Earth dist.	3040 Mar 12 17:56	19° ✕ 24'51	41.85347 AU		3048 Apr 03 17:35	0° ∇	
retrograde	3040 Jun 20 18:25	21° ✕ 08'40		retrograde	3048 Jun 30 22:33	1° ∇ 20'52	
min. Earth dist.	3040 Sep 08 21:09	20° ✕ 04'55	40.01996 AU	min. Earth dist.	3048 Sep 19 12:48	0° ∇ 18'28	41.85396 AU
opposition	3040 Sep 11 22:11	20° ✕ 01'02	-12°-41'-55	opposition	3048 Sep 22 10:22	0° ∇ 14'52	-14°-35'-32
direct	3040 Dec 02 01:37	18° ✕ 54'30			3048 Oct 04 11:57	30° ℞ ✕	
				direct	3048 Dec 12 13:55	29° ✕ 10'08	
conjunction	3041 Mar 11 07:40	20° ✕ 39'25	-12°-13'-38		3049 Feb 16 07:03	0° ∇	
minimum elong	3041 Mar 11 07:28	20° ✕ 39'25	12°13'40	conjunction	3049 Mar 21 09:31	0° ∇ 50'27	-14°-1'-40
max. Earth dist.	3041 Mar 14 08:10	20° ✕ 44'26	42.09319 AU	minimum elong	3049 Mar 21 09:22	0° ∇ 50'26	14°01'41
retrograde	3041 Jun 22 08:22	22° ✕ 27'41		max. Earth dist.	3049 Mar 24 07:48	0° ∇ 55'07	43.90134 AU
min. Earth dist.	3041 Sep 10 13:22	21° ✕ 24'04	40.26011 AU	retrograde	3049 Jul 02 07:11	2° ∇ 34'21	
opposition	3041 Sep 13 12:54	21° ✕ 20'17	-12°-58'-1	min. Earth dist.	3049 Sep 21 00:32	1° ∇ 32'10	42.07292 AU
direct	3041 Dec 03 16:03	20° ✕ 14'01		opposition	3049 Sep 23 22:28	1° ∇ 28'34	-14°-47'-18
				direct	3049 Dec 14 03:46	0° ∇ 24'03	
conjunction	3042 Mar 12 20:56	21° ✕ 58'20	-12°-28'-57				
minimum elong	3042 Mar 12 20:46	21° ✕ 58'19	12°28'57	conjunction	3050 Mar 22 20:29	2° ∇ 03'52	-14°-12'-53
max. Earth dist.	3042 Mar 15 20:13	22° ✕ 03'14	42.32957 AU	minimum elong	3050 Mar 22 20:21	2° ∇ 03'51	14°12'54
retrograde	3042 Jun 23 21:32	23° ✕ 46'00		max. Earth dist.	3050 Mar 25 18:03	2° ∇ 08'28	44.11753 AU
min. Earth dist.	3042 Sep 12 03:05	22° ✕ 42'38	40.49664 AU	retrograde	3050 Jul 03 18:34	3° ∇ 47'19	
opposition	3042 Sep 15 03:06	22° ✕ 38'50	-13°-13'-35	min. Earth dist.	3050 Sep 22 12:50	2° ∇ 45'18	42.28971 AU
direct	3042 Dec 05 06:11	21° ✕ 32'48		opposition	3050 Sep 25 10:25	2° ∇ 41'43	-14°-58'-34
				direct	3050 Dec 15 16:00	1° ∇ 37'27	
conjunction	3043 Mar 14 09:54	23° ✕ 16'32	-12°-43'-44				
minimum elong	3043 Mar 14 09:42	23° ✕ 16'31	12°43'45	conjunction	3051 Mar 24 07:28	3° ∇ 16'45	-14°-23'-37
max. Earth dist.	3043 Mar 17 08:59	23° ✕ 21'24	42.56224 AU	minimum elong	3051 Mar 24 07:19	3° ∇ 16'45	14°23'38
retrograde	3043 Jun 25 09:47	25° ✕ 03'38		max. Earth dist.	3051 Mar 27 05:38	3° ∇ 21'23	44.33141 AU
min. Earth dist.	3043 Sep 13 18:24	24° ✕ 00'24	40.72957 AU	retrograde	3051 Jul 05 04:42	4° ∇ 59'46	
opposition	3043 Sep 16 17:17	23° ✕ 56'40	-13°-28'-35	min. Earth dist.	3051 Sep 24 01:29	3° ∇ 57'54	42.50372 AU
direct	3043 Dec 06 20:48	22° ✕ 50'53		opposition	3051 Sep 26 22:09	3° ∇ 54'23	-15°-9'-21
				direct	3051 Dec 17 05:17	2° ∇ 50'20	
conjunction	3044 Mar 14 22:34	24° ✕ 33'59	-12°-58'00				
minimum elong	3044 Mar 14 22:24	24° ✕ 33'58	12°58'01	conjunction	3052 Mar 24 18:04	4° ∇ 29'10	-14°-33'-53
max. Earth dist.	3044 Mar 17 21:38	24° ✕ 38'50	42.79149 AU	minimum elong	3052 Mar 24 17:56	4° ∇ 29'09	14°33'55
retrograde	3044 Jun 25 20:00	26° ✕ 20'32		max. Earth dist.	3052 Mar 27 14:46	4° ∇ 33'40	44.54230 AU
min. Earth dist.	3044 Sep 14 08:13	25° ✕ 17'28	40.95904 AU	retrograde	3052 Jul 05 18:30	6° ∇ 11'43	
opposition	3044 Sep 17 06:55	25° ✕ 13'45	-13°-43'-4	min. Earth dist.	3052 Sep 24 12:47	5° ∇ 10'03	42.71445 AU
direct	3044 Dec 07 13:00	24° ✕ 08'10		opposition	3052 Sep 27 09:38	5° ∇ 06'33	-15°-19'-39
				direct	3052 Dec 17 14:20	4° ∇ 02'43	
conjunction	3045 Mar 16 10:51	25° ✕ 50'41	-13°-11'-46				
minimum elong	3045 Mar 16 10:40	25° ✕ 50'40	13°11'47	conjunction	3053 Mar 26 04:44	5° ∇ 41'04	-14°-43'-43
max. Earth dist.	3045 Mar 19 08:48	25° ✕ 55'26	43.01759 AU				

minimum elong	3053 Mar 26 04:37	5°V41'04	14°43'43	min. Earth dist.	3061 Oct 05 15:52	15°V33'56	44.43074 AU
max. Earth dist.	3053 Mar 29 01:33	5°V45'33	44.74949 AU	opposition	3061 Oct 08 06:10	15°V30'49	-16°-32'-48
retrograde	3053 Jul 07 07:11	7°V23'10		direct	3061 Dec 28 14:02	14°V28'30	
min. Earth dist.	3053 Sep 26 01:50	6°V21'36	42.92113 AU				
opposition	3053 Sep 28 20:50	6°V18'12	-15°-29'-29	conjunction	3062 Apr 05 18:47	16°V02'56	-15°-53'-30
direct	3053 Dec 18 23:42	5°V14'34		minimum elong	3062 Apr 05 18:42	16°V02'56	15°53'31
				max. Earth dist.	3062 Apr 08 09:26	16°V06'52	46.43874 AU
conjunction	3054 Mar 27 15:15	6°V52'28	-14°-53'-7	retrograde	3062 Jul 17 16:05	17°V41'16	
minimum elong	3054 Mar 27 15:07	6°V52'28	14°53'08	min. Earth dist.	3062 Oct 07 01:09	16°V40'47	44.60625 AU
max. Earth dist.	3054 Mar 30 10:58	6°V56'52	44.95249 AU	opposition	3062 Oct 09 15:23	16°V37'42	-16°-38'-47
retrograde	3054 Jul 08 15:51	8°V34'07		direct	3062 Dec 29 22:58	15°V35'33	
min. Earth dist.	3054 Sep 27 12:50	7°V32'43	43.12323 AU				
opposition	3054 Sep 30 07:49	7°V29'19	-15°-38'-54	conjunction	3063 Apr 07 03:20	17°V09'39	-15°-59'-13
direct	3054 Dec 20 11:25	6°V25'52		minimum elong	3063 Apr 07 03:18	17°V09'38	15°59'14
				max. Earth dist.	3063 Apr 09 18:35	17°V13'36	46.61175 AU
conjunction	3055 Mar 29 01:19	8°V03'18	-15°-2'-6	retrograde	3063 Jul 19 02:44	18°V47'38	
minimum elong	3055 Mar 29 01:12	8°V03'18	15°02'07	min. Earth dist.	3063 Oct 08 11:51	17°V47'15	44.77860 AU
max. Earth dist.	3055 Mar 31 19:49	8°V07'36	45.15078 AU	opposition	3063 Oct 11 00:31	17°V44'15	-16°-44'-22
retrograde	3055 Jul 10 00:33	9°V44'30		direct	3063 Dec 31 07:18	16°V42'18	
min. Earth dist.	3055 Sep 29 01:02	8°V43'11	43.32069 AU				
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direct	3055 Dec 21 23:41	7°V36'35		minimum elong	3064 Apr 07 11:50	18°V16'02	16°04'33
				max. Earth dist.	3064 Apr 10 01:49	18°V19'54	46.78155 AU
conjunction	3056 Mar 29 11:27	9°V13'32	-15°-10'-41	retrograde	3064 Jul 19 12:27	19°V53'42	
minimum elong	3056 Mar 29 11:20	9°V13'32	15°10'43	min. Earth dist.	3064 Oct 08 20:21	18°V53'30	44.94738 AU
max. Earth dist.	3056 Apr 01 06:01	9°V17'50	45.34460 AU	opposition	3064 Oct 11 09:12	18°V50'30	-16°-49'-34
retrograde	3056 Jul 10 08:18	10°V54'17		direct	3064 Dec 31 13:46	17°V48'43	
min. Earth dist.	3056 Sep 29 12:34	9°V53'03	43.51365 AU				
opposition	3056 Oct 02 05:15	9°V49'47	-15°-56'-27	conjunction	3065 Apr 08 20:19	19°V22'08	-16°-9'-30
direct	3056 Dec 22 12:56	8°V46'39		minimum elong	3065 Apr 08 20:17	19°V22'08	16°09'32
				max. Earth dist.	3065 Apr 11 09:23	19°V25'56	46.94735 AU
conjunction	3057 Mar 30 21:09	10°V23'08	-15°-18'-51	retrograde	3065 Jul 20 20:25	20°V59'28	
minimum elong	3057 Mar 30 21:04	10°V23'08	15°18'52	min. Earth dist.	3065 Oct 10 06:59	19°V59'20	45.11190 AU
max. Earth dist.	3057 Apr 02 14:04	10°V27'18	45.53428 AU	opposition	3065 Oct 12 17:59	19°V56'26	-16°-54'-25
retrograde	3057 Jul 11 19:23	12°V03'26		direct	3066 Jan 01 22:15	18°V54'50	
min. Earth dist.	3057 Sep 30 22:46	11°V02'20	43.70283 AU				
opposition	3057 Oct 03 15:32	10°V59'04	-16°-4'-35	conjunction	3066 Apr 10 04:41	20°V27'55	-16°-14'-8
direct	3057 Dec 23 22:28	9°V56'05		minimum elong	3066 Apr 10 04:39	20°V27'55	16°14'08
				max. Earth dist.	3066 Apr 12 17:17	20°V31'40	47.10871 AU
conjunction	3058 Apr 01 06:39	11°V32'08	-15°-26'-37	retrograde	3066 Jul 22 01:19	22°V04'54	
minimum elong	3058 Apr 01 06:33	11°V32'07	15°26'39	min. Earth dist.	3066 Oct 11 16:10	21°V04'53	45.27151 AU
max. Earth dist.	3058 Apr 03 23:56	11°V36'17	45.72041 AU	opposition	3066 Oct 14 02:28	21°V02'01	-16°-58'-54
retrograde	3058 Jul 13 05:26	13°V12'00		direct	3067 Jan 03 09:10	20°V00'34	
min. Earth dist.	3058 Oct 02 10:21	12°V10'57	43.88872 AU				
opposition	3058 Oct 05 01:35	12°V07'46	-16°-12'-17	conjunction	3067 Apr 11 12:51	21°V33'19	-16°-18'-25
direct	3058 Dec 25 08:09	11°V04'56		minimum elong	3067 Apr 11 12:49	21°V33'19	16°18'26
				max. Earth dist.	3067 Apr 13 23:27	21°V36'56	47.26514 AU
conjunction	3059 Apr 02 15:59	12°V40'33	-15°-33'-58	retrograde	3067 Jul 23 09:50	23°V09'59	
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max. Earth dist.	3059 Apr 05 08:23	12°V44'38	45.90377 AU	opposition	3067 Oct 15 10:54	22°V07'14	-17°-3'-3
retrograde	3059 Jul 14 14:59	14°V19'59		direct	3068 Jan 04 17:57	21°V05'54	
min. Earth dist.	3059 Oct 03 19:34	13°V19'06	44.07191 AU				
opposition	3059 Oct 06 11:19	13°V15'55	-16°-19'-33	conjunction	3068 Apr 11 20:55	22°V38'18	-16°-22'-23
direct	3059 Dec 26 16:32	12°V13'14		minimum elong	3068 Apr 11 20:54	22°V38'18	16°22'23
				max. Earth dist.	3068 Apr 14 07:30	22°V41'54	47.41673 AU
conjunction	3060 Apr 03 01:00	13°V48'27	-15°-40'-53	retrograde	3068 Jul 23 17:40	24°V14'37	
minimum elong	3060 Apr 03 00:54	13°V48'26	15°40'54	min. Earth dist.	3068 Oct 13 11:20	23°V14'43	45.57615 AU
max. Earth dist.	3060 Apr 05 16:56	13°V52'29	46.08451 AU	opposition	3068 Oct 15 19:07	23°V11'59	-17°-6'-52
retrograde	3060 Jul 14 23:43	15°V27'29		direct	3069 Jan 05 04:06	22°V10'46	
min. Earth dist.	3060 Oct 04 06:20	14°V26'42	44.25264 AU				
opposition	3060 Oct 06 21:00	14°V23'35	-16°-26'-23	conjunction	3069 Apr 13 04:47	23°V42'49	-16°-26'00
direct	3060 Dec 27 01:56	13°V21'05		minimum elong	3069 Apr 13 04:45	23°V42'49	16°26'02
				max. Earth dist.	3069 Apr 15 13:42	23°V46'18	47.56388 AU
conjunction	3061 Apr 04 10:05	14°V55'53	-15°-47'-24	retrograde	3069 Jul 25 03:49	25°V18'47	
minimum elong	3061 Apr 04 10:02	14°V55'53	15°47'25	min. Earth dist.	3069 Oct 14 19:06	24°V18'58	45.72186 AU
max. Earth dist.	3061 Apr 07 02:16	14°V59'56	46.26291 AU	opposition	3069 Oct 17 02:53	24°V16'15	-17°-10'-20
retrograde	3061 Jul 16 05:48	16°V34'34		direct	3070 Jan 06 09:45	23°V15'08	























































































































conjunction	3070 Apr 14 12:24	24° Υ 46'51	-16°-29'-18	direct	3078 Jan 14 20:07	1° \mathcal{B} 36'19	
minimum elong	3070 Apr 14 12:24	24° Υ 46'51	16°29'19				
max. Earth dist.	3070 Apr 16 20:50	24° Υ 50'17	47.70712 AU	conjunction	3078 Apr 22 21:07	3° \mathcal{B} 05'49	-16°-43'-29
retrograde	3070 Jul 26 12:49	26° Υ 22'28		minimum elong	3078 Apr 22 21:10	3° \mathcal{B} 05'49	16°43'31
min. Earth dist.	3070 Oct 16 04:34	25° Υ 22'40	45.86406 AU	max. Earth dist.	3078 Apr 25 00:11	3° \mathcal{B} 08'52	48.74587 AU
opposition	3070 Oct 18 10:45	25° Υ 20'02	-17°-13'-27	retrograde	3078 Aug 03 15:42	4° \mathcal{B} 39'14	
direct	3071 Jan 07 15:14	24° Υ 19'01		min. Earth dist.	3078 Oct 24 19:47	3° \mathcal{B} 40'06	46.89134 AU
				opposition	3078 Oct 26 19:32	3° \mathcal{B} 37'49	-17°-25'-55
conjunction	3071 Apr 15 19:49	25° Υ 50'24	-16°-32'-15	direct	3079 Jan 16 05:20	2° \mathcal{B} 37'49	
minimum elong	3071 Apr 15 19:48	25° Υ 50'24	16°32'16				
max. Earth dist.	3071 Apr 18 04:08	25° Υ 53'49	47.84727 AU	conjunction	3079 Apr 24 03:46	4° \mathcal{B} 07'05	-16°-43'-53
retrograde	3071 Jul 27 16:46	27° Υ 25'41		minimum elong	3079 Apr 24 03:49	4° \mathcal{B} 07'05	16°43'53
min. Earth dist.	3071 Oct 17 12:10	26° Υ 25'59	46.00318 AU	max. Earth dist.	3079 Apr 26 04:44	4° \mathcal{B} 10'00	48.85816 AU
opposition	3071 Oct 19 18:19	26° Υ 23'21	-17°-16'-13	retrograde	3079 Aug 05 00:39	5° \mathcal{B} 40'15	
direct	3072 Jan 09 01:13	25° Υ 22'27		min. Earth dist.	3079 Oct 26 02:46	4° \mathcal{B} 41'13	47.00104 AU
				opposition	3079 Oct 28 02:09	4° \mathcal{B} 38'57	-17°-26'-5
conjunction	3072 Apr 16 03:07	26° Υ 53'31	-16°-34'-51	direct	3080 Jan 17 10:41	3° \mathcal{B} 39'03	
minimum elong	3072 Apr 16 03:08	26° Υ 53'31	16°34'52				
max. Earth dist.	3072 Apr 18 09:56	26° Υ 56'51	47.98458 AU	conjunction	3080 Apr 24 10:28	5° \mathcal{B} 08'05	-16°-44'-1
retrograde	3072 Jul 27 22:27	28° Υ 28'29		minimum elong	3080 Apr 24 10:31	5° \mathcal{B} 08'06	16°44'02
min. Earth dist.	3072 Oct 17 20:09	27° Υ 28'52	46.13969 AU	max. Earth dist.	3080 Apr 26 10:36	5° \mathcal{B} 10'56	48.96517 AU
opposition	3072 Oct 20 01:43	27° Υ 26'16	-17°-18'-37	retrograde	3080 Aug 05 09:44	6° \mathcal{B} 41'01	
direct	3073 Jan 09 10:01	26° Υ 25'29		min. Earth dist.	3080 Oct 26 11:28	5° \mathcal{B} 41'58	47.10559 AU
				opposition	3080 Oct 28 08:36	5° \mathcal{B} 39'49	-17°-25'-59
conjunction	3073 Apr 17 10:26	27° Υ 56'15	-16°-37'-7	direct	3081 Jan 17 14:48	4° \mathcal{B} 40'00	
minimum elong	3073 Apr 17 10:25	27° Υ 56'15	16°37'08				
max. Earth dist.	3073 Apr 19 17:44	27° Υ 59'35	48.11931 AU	conjunction	3081 Apr 25 17:05	6° \mathcal{B} 08'48	-16°-43'-52
retrograde	3073 Jul 29 05:01	29° Υ 30'55		minimum elong	3081 Apr 25 17:09	6° \mathcal{B} 08'49	16°43'53
min. Earth dist.	3073 Oct 19 04:41	28° Υ 31'22	46.27343 AU	max. Earth dist.	3081 Apr 27 16:21	6° \mathcal{B} 11'36	49.06742 AU
opposition	3073 Oct 21 09:01	28° Υ 28'49	-17°-20'-39	retrograde	3081 Aug 06 14:03	7° \mathcal{B} 41'28	
direct	3074 Jan 10 19:18	27° Υ 28'10		min. Earth dist.	3081 Oct 27 17:55	6° \mathcal{B} 42'30	47.20545 AU
				opposition	3081 Oct 29 14:49	6° \mathcal{B} 40'22	-17°-25'-36
conjunction	3074 Apr 18 17:23	28° Υ 58'38	-16°-39'-1	direct	3082 Jan 18 21:42	5° \mathcal{B} 40'38	
minimum elong	3074 Apr 18 17:25	28° Υ 58'39	16°39'03				
max. Earth dist.	3074 Apr 20 23:21	29° Υ 01'53	48.25143 AU	conjunction	3082 Apr 26 23:16	7° \mathcal{B} 09'12	-16°-43'-27
	3074 Jun 03 22:18	0° \mathcal{B}		minimum elong	3082 Apr 26 23:19	7° \mathcal{B} 09'12	16°43'29
retrograde	3074 Jul 30 13:59	0° \mathcal{B} 33'02		max. Earth dist.	3082 Apr 28 20:46	7° \mathcal{B} 11'53	49.16526 AU
	3074 Sep 26 17:38	30° \mathcal{R} Υ		retrograde	3082 Aug 07 18:20	8° \mathcal{B} 41'37	
min. Earth dist.	3074 Oct 20 11:25	29° Υ 33'38	46.40443 AU	min. Earth dist.	3082 Oct 29 01:23	7° \mathcal{B} 42'41	47.30138 AU
opposition	3074 Oct 22 16:08	29° Υ 31'05	-17°-22'-21	opposition	3082 Oct 30 21:04	7° \mathcal{B} 40'36	-17°-24'-56
direct	3075 Jan 12 01:01	28° Υ 30'33		direct	3083 Jan 20 05:14	6° \mathcal{B} 40'57	
	3075 Apr 19 11:42	0° \mathcal{B}					
conjunction	3075 Apr 20 00:21	0° \mathcal{B} 00'46	-16°-40'-36	conjunction	3083 Apr 28 05:36	8° \mathcal{B} 09'18	-16°-42'-45
minimum elong	3075 Apr 20 00:22	0° \mathcal{B} 00'46	16°40'37	minimum elong	3083 Apr 28 05:41	8° \mathcal{B} 09'18	16°42'46
max. Earth dist.	3075 Apr 22 05:51	0° \mathcal{B} 03'58	48.38062 AU	max. Earth dist.	3083 Apr 30 03:25	8° \mathcal{B} 12'00	49.25950 AU
retrograde	3075 Jul 31 22:12	1° \mathcal{B} 34'54		retrograde	3083 Aug 08 22:24	9° \mathcal{B} 41'30	
min. Earth dist.	3075 Oct 21 20:17	0° \mathcal{B} 35'32	46.53235 AU	min. Earth dist.	3083 Oct 30 08:31	8° \mathcal{B} 42'35	47.39379 AU
opposition	3075 Oct 23 23:15	0° \mathcal{B} 33'04	-17°-23'-42	opposition	3083 Nov 01 03:05	8° \mathcal{B} 40'33	-17°-23'-58
	3075 Nov 23 02:43	30° \mathcal{R} Υ		direct	3084 Jan 21 14:27	7° \mathcal{B} 40'59	
direct	3076 Jan 13 06:25	29° Υ 32'41					
	3076 Mar 03 04:15	0° \mathcal{B}		conjunction	3084 Apr 28 11:42	9° \mathcal{B} 09'07	-16°-41'-45
				minimum elong	3084 Apr 28 11:45	9° \mathcal{B} 09'07	16°41'46
conjunction	3076 Apr 20 07:20	1° \mathcal{B} 02'39	-16°-41'-52	max. Earth dist.	3084 Apr 30 07:50	9° \mathcal{B} 11'42	49.35057 AU
minimum elong	3076 Apr 20 07:23	1° \mathcal{B} 02'39	16°41'53	retrograde	3084 Aug 09 06:16	10° \mathcal{B} 41'06	
max. Earth dist.	3076 Apr 22 12:28	1° \mathcal{B} 05'50	48.50662 AU	min. Earth dist.	3084 Oct 30 14:20	9° \mathcal{B} 42'17	47.48315 AU
retrograde	3076 Aug 01 03:35	2° \mathcal{B} 36'32		opposition	3084 Nov 01 08:59	9° \mathcal{B} 40'15	-17°-22'-41
min. Earth dist.	3076 Oct 22 03:28	1° \mathcal{B} 37'17	46.65653 AU	direct	3085 Jan 21 19:50	8° \mathcal{B} 40'46	
opposition	3076 Oct 24 06:05	1° \mathcal{B} 34'51	-17°-24'-44				
direct	3077 Jan 13 13:11	0° \mathcal{B} 34'36		conjunction	3085 Apr 29 17:46	10° \mathcal{B} 08'42	-16°-40'-28
				minimum elong	3085 Apr 29 17:52	10° \mathcal{B} 08'42	16°40'28
conjunction	3077 Apr 21 14:10	2° \mathcal{B} 04'20	-16°-42'-49	max. Earth dist.	3085 May 01 13:30	10° \mathcal{B} 11'15	49.43855 AU
minimum elong	3077 Apr 21 14:12	2° \mathcal{B} 04'20	16°42'49	retrograde	3085 Aug 10 13:52	11° \mathcal{B} 40'29	
max. Earth dist.	3077 Apr 23 17:24	2° \mathcal{B} 07'24	48.62853 AU	min. Earth dist.	3085 Oct 31 21:53	10° \mathcal{B} 41'40	47.56945 AU
retrograde	3077 Aug 02 10:28	3° \mathcal{B} 37'58		opposition	3085 Nov 02 14:46	10° \mathcal{B} 39'43	-17°-21'-7
min. Earth dist.	3077 Oct 23 11:26	2° \mathcal{B} 38'48	46.77646 AU	direct	3086 Jan 23 00:11	9° \mathcal{B} 40'20	
opposition	3077 Oct 25 12:48	2° \mathcal{B} 36'26	-17°-25'-28	conjunction	3086 Apr 30 23:47	11° \mathcal{B} 08'05	-16°-38'-52

minimum elong	3086 Apr 30 23:52	11°08'05	16°38'53	conjunction	3094 May 08 21:57	18°05'14	-16°-16'-53
max. Earth dist.	3086 May 02 19:03	11°08'10'36	49.52373 AU	minimum elong	3094 May 08 22:05	18°05'15	16°16'53
retrograde	3086 Aug 11 19:52	12°08'39'39		max. Earth dist.	3094 May 10 07:13	18°05'09	50.05462 AU
min. Earth dist.	3086 Nov 02 03:30	11°08'40'57	47.65274 AU	retrograde	3094 Aug 19 13:44	20°08'27'24	
opposition	3086 Nov 03 20:27	11°08'39'00	-17°-19'-15	min. Earth dist.	3094 Nov 10 07:36	19°08'28'50	48.16128 AU
direct	3087 Jan 24 03:57	10°08'39'42		opposition	3094 Nov 11 15:24	19°08'27'20	-16°-54'-53
				direct	3095 Feb 01 03:25	18°08'28'31	
conjunction	3087 May 02 05:30	12°08'07'18	-16°-37'00				
minimum elong	3087 May 02 05:37	12°08'07'18	16°37'01	conjunction	3095 May 10 03:19	19°08'54'51	-16°-13'-3
max. Earth dist.	3087 May 03 23:13	12°08'09'44	49.60576 AU	minimum elong	3095 May 10 03:25	19°08'54'51	16°13'04
retrograde	3087 Aug 13 01:35	13°08'38'41		max. Earth dist.	3095 May 11 12:03	19°08'56'43	50.09991 AU
min. Earth dist.	3087 Nov 03 10:30	12°08'40'01	47.73279 AU	retrograde	3095 Aug 20 20:07	21°08'24'51	
opposition	3087 Nov 05 02:13	12°08'38'09	-17°-17'-5	opposition	3095 Nov 12 20:27	20°08'24'50	-16°-50'-44
direct	3088 Jan 25 08:54	11°08'38'56		min. Earth dist.	3095 Nov 11 14:34	20°08'26'14	48.20417 AU
				direct	3096 Feb 02 08:36	19°08'26'03	
conjunction	3088 May 02 11:31	13°08'06'22	-16°-34'-52				
minimum elong	3088 May 02 11:36	13°08'06'22	16°34'52	conjunction	3096 May 10 08:47	20°08'52'14	-16°-8'-57
max. Earth dist.	3088 May 04 05:15	13°08'08'48	49.68432 AU	minimum elong	3096 May 10 08:56	20°08'52'15	16°08'58
retrograde	3088 Aug 13 04:21	14°08'37'36		max. Earth dist.	3096 May 11 16:57	20°08'54'05	50.14192 AU
min. Earth dist.	3088 Nov 03 17:14	13°08'38'58	47.80891 AU	retrograde	3096 Aug 21 01:46	22°08'22'05	
opposition	3088 Nov 05 07:40	13°08'37'09	-17°-14'-39	min. Earth dist.	3096 Nov 11 19:12	21°08'23'31	48.24385 AU
direct	3089 Jan 25 17:29	12°08'38'03		opposition	3096 Nov 13 01:07	21°08'22'07	-16°-46'-18
				direct	3097 Feb 02 11:55	20°08'23'22	
conjunction	3089 May 03 17:23	14°08'05'19	-16°-32'-27				
minimum elong	3089 May 03 17:29	14°08'05'19	16°32'29	conjunction	3097 May 11 14:03	21°08'49'27	-16°-4'-36
max. Earth dist.	3089 May 05 09:07	14°08'07'38	49.75878 AU	minimum elong	3097 May 11 14:11	21°08'49'27	16°04'37
	3089 Jun 14 19:43	15°08'		max. Earth dist.	3097 May 12 20:30	21°08'51'11	50.18080 AU
retrograde	3089 Aug 14 11:05	15°08'36'23		retrograde	3097 Aug 22 07:05	23°08'19'10	
	3089 Oct 15 18:56	15°08'		min. Earth dist.	3097 Nov 13 01:23	22°08'20'36	48.28062 AU
min. Earth dist.	3089 Nov 04 23:16	14°08'37'50	47.88062 AU	opposition	3097 Nov 14 06:01	22°08'19'15	-16°-41'-37
opposition	3089 Nov 06 13:08	14°08'36'02	-17°-11'-57	direct	3098 Feb 03 15:22	21°08'20'33	
direct	3090 Jan 26 23:47	13°08'37'01					
	3090 May 01 23:37	15°08'		conjunction	3098 May 12 19:15	22°08'46'33	-15°-59'-59
				minimum elong	3098 May 12 19:25	22°08'46'33	16°00'00
conjunction	3090 May 04 23:08	15°08'04'08	-16°-29'-48	max. Earth dist.	3098 May 14 01:59	22°08'48'18	50.21686 AU
minimum elong	3090 May 04 23:14	15°08'04'08	16°29'49	retrograde	3098 Aug 23 09:33	24°08'16'09	
max. Earth dist.	3090 May 06 14:00	15°08'06'23	49.82835 AU	min. Earth dist.	3098 Nov 14 06:55	23°08'17'37	48.31436 AU
retrograde	3090 Aug 15 19:47	16°08'35'02		opposition	3098 Nov 15 10:48	23°08'16'18	-16°-36'-39
min. Earth dist.	3090 Nov 06 07:04	15°08'36'27	47.94716 AU	direct	3099 Feb 04 22:33	22°08'17'40	
opposition	3090 Nov 07 18:43	15°08'34'47	-17°-9'-1				
	3090 Dec 10 13:42	15°08'		conjunction	3099 May 14 00:26	23°08'43'34	-15°-55'-6
direct	3091 Jan 28 04:05	14°08'35'50		minimum elong	3099 May 14 00:34	23°08'43'35	15°55'07
	3091 Mar 16 17:57	15°08'		max. Earth dist.	3099 May 15 05:27	23°08'45'14	50.25004 AU
				retrograde	3099 Aug 24 15:01	25°08'13'05	
conjunction	3091 May 06 05:02	16°08'02'47	-16°-26'-55	min. Earth dist.	3099 Nov 15 11:55	24°08'14'37	48.34514 AU
minimum elong	3091 May 06 05:09	16°08'02'48	16°26'57	opposition	3099 Nov 16 15:27	24°08'13'19	-16°-31'-25
max. Earth dist.	3091 May 07 18:43	16°08'04'58	49.89275 AU	direct	3100 Feb 06 04:07	23°08'14'45	
retrograde	3091 Aug 17 01:26	17°08'33'30					
opposition	3091 Nov 09 00:00	16°08'33'19	-17°-5'-50	conjunction	3100 May 15 05:41	24°08'40'35	-15°-49'-58
min. Earth dist.	3091 Nov 07 12:47	16°08'34'58	48.00824 AU	minimum elong	3100 May 15 05:51	24°08'40'36	15°50'00
direct	3092 Jan 29 08:09	15°08'34'24		max. Earth dist.	3100 May 16 10:09	24°08'42'13	50.27988 AU
				retrograde	3100 Aug 25 22:57	26°08'10'02	
conjunction	3092 May 06 10:44	17°08'01'12	-16°-23'-48	opposition	3100 Nov 17 20:11	25°08'10'21	-16°-25'-55
minimum elong	3092 May 06 10:51	17°08'01'13	16°23'49	min. Earth dist.	3100 Nov 16 18:37	25°08'11'33	48.37226 AU
max. Earth dist.	3092 May 07 22:12	17°08'03'15	49.95164 AU				
retrograde	3092 Aug 17 06:12	18°08'31'44					
min. Earth dist.	3092 Nov 07 19:57	17°08'33'10	48.06397 AU				
opposition	3092 Nov 09 05:21	17°08'31'36	-17°-2'-26				
direct	3093 Jan 29 13:37	16°08'32'44					
conjunction	3093 May 07 16:29	17°08'59'22	-16°-20'-28				
minimum elong	3093 May 07 16:36	17°08'59'22	16°20'29				
max. Earth dist.	3093 May 09 03:46	18°08'01'24	50.00538 AU				
retrograde	3093 Aug 18 08:00	19°08'29'42					
min. Earth dist.	3093 Nov 09 02:19	18°08'31'07	48.11467 AU				
opposition	3093 Nov 10 10:23	18°08'29'36	-16°-58'-47				
direct	3094 Jan 30 22:03	17°08'30'46					

direct	3100 Feb 06 04:07	23°♄14'45		max. Earth dist.	3107 May 23 12:57	1°♄19'46	50.35994 AU
				retrograde	3107 Sep 02 10:50	2°♄47'31	
conjunction	3100 May 15 05:41	24°♄40'35 -15°-49'-58		min. Earth dist.	3107 Nov 24 10:07	1°♄48'54	48.42920 AU
minimum elong	3100 May 15 05:51	24°♄40'36 15°50'00		opposition	3107 Nov 25 03:36	1°♄48'05	-15°-41'-10
max. Earth dist.	3100 May 16 10:09	24°♄42'13 50.27988 AU		direct	3108 Feb 14 13:18	0°♄49'42	
retrograde	3100 Aug 25 22:57	26°♄10'02					
opposition	3100 Nov 17 20:11	25°♄10'21 -16°-25'-55		conjunction	3108 May 22 23:03	2°♄15'04	-15°00'-50
min. Earth dist.	3100 Nov 16 18:37	25°♄11'33 48.37226 AU		minimum elong	3108 May 22 23:13	2°♄15'04	15°00'51
direct	3101 Feb 07 07:53	24°♄11'51		max. Earth dist.	3108 May 23 18:09	2°♄16'08	50.35406 AU
				retrograde	3108 Sep 02 13:01	3°♄43'48	
conjunction	3101 May 16 10:58	25°♄37'38 -15°-44'-36		opposition	3108 Nov 25 07:52	2°♄44'23	-15°-33'-50
minimum elong	3101 May 16 11:06	25°♄37'38 15°44'36		min. Earth dist.	3108 Nov 24 15:10	2°♄45'09	48.42056 AU
max. Earth dist.	3101 May 17 14:27	25°♄39'11 50.30594 AU		direct	3109 Feb 14 19:42	1°♄45'59	
retrograde	3101 Aug 27 05:42	27°♄06'59					
min. Earth dist.	3101 Nov 17 23:18	26°♄08'34 48.39516 AU		conjunction	3109 May 24 03:57	3°♄11'18	-14°-53'-39
opposition	3101 Nov 19 00:39	26°♄07'23 -16°-20'-12		minimum elong	3109 May 24 04:08	3°♄11'18	14°53'40
direct	3102 Feb 08 09:42	25°♄08'57		max. Earth dist.	3109 May 24 21:20	3°♄12'17	50.34509 AU
				retrograde	3109 Sep 03 16:01	4°♄39'59	
conjunction	3102 May 17 16:09	26°♄34'41 -15°-39'00		opposition	3109 Nov 26 12:02	3°♄40'34	-15°-26'-15
minimum elong	3102 May 17 16:18	26°♄34'41 15°39'01		min. Earth dist.	3109 Nov 25 19:41	3°♄41'20	48.40902 AU
max. Earth dist.	3102 May 18 17:35	26°♄36'08 50.32740 AU		direct	3110 Feb 16 01:37	2°♄42'10	
retrograde	3102 Aug 28 10:46	28°♄03'58					
min. Earth dist.	3102 Nov 19 05:58	27°♄05'31 48.41329 AU		conjunction	3110 May 25 08:56	4°♄07'27	-14°-46'-14
opposition	3102 Nov 20 05:21	27°♄04'26 -16°-14'-15		minimum elong	3110 May 25 09:06	4°♄07'28	14°46'15
direct	3103 Feb 09 13:50	26°♄06'02		max. Earth dist.	3110 May 26 01:44	4°♄08'24	50.33320 AU
				retrograde	3110 Sep 04 21:41	5°♄36'06	
conjunction	3103 May 18 21:27	27°♄31'43 -15°-33'-11		opposition	3110 Nov 27 16:22	4°♄36'42	-15°-18'-25
minimum elong	3103 May 18 21:36	27°♄31'43 15°33'11		min. Earth dist.	3110 Nov 27 01:40	4°♄37'24	48.39456 AU
max. Earth dist.	3103 May 19 22:31	27°♄33'08 50.34383 AU		direct	3111 Feb 17 06:56	3°♄38'19	
retrograde	3103 Aug 29 11:50	29°♄00'55					
min. Earth dist.	3103 Nov 20 11:51	28°♄02'27 48.42601 AU		conjunction	3111 May 26 13:53	5°♄03'35	-14°-38'-34
opposition	3103 Nov 21 09:58	28°♄01'25 -16°-8'-5		minimum elong	3111 May 26 14:04	5°♄03'36	14°38'35
direct	3104 Feb 10 21:38	27°♄03'03		max. Earth dist.	3111 May 27 06:06	5°♄04'30	50.31854 AU
				retrograde	3111 Sep 06 04:41	6°♄32'12	
conjunction	3104 May 19 02:42	28°♄28'40 -15°-27'-9		opposition	3111 Nov 28 20:34	5°♄32'51	-15°-10'-20
minimum elong	3104 May 19 02:52	28°♄28'41 15°27'10		min. Earth dist.	3111 Nov 28 05:47	5°♄33'32	48.37703 AU
max. Earth dist.	3104 May 20 01:22	28°♄29'58 50.35496 AU		direct	3112 Feb 18 09:06	4°♄34'28	
retrograde	3104 Aug 29 16:39	29°♄57'47					
opposition	3104 Nov 21 14:22	28°♄58'19 -16°-1'-41		conjunction	3112 May 26 18:54	5°♄59'45	-14°-30'-39
min. Earth dist.	3104 Nov 20 17:04	28°♄59'19 48.43353 AU		minimum elong	3112 May 26 19:04	5°♄59'46	14°30'40
direct	3105 Feb 11 03:13	27°♄59'57		max. Earth dist.	3112 May 27 09:15	6°♄00'34	50.30055 AU
				retrograde	3112 Sep 06 10:40	7°♄28'21	
conjunction	3105 May 20 07:56	29°♄25'30 -15°-20'-55		min. Earth dist.	3112 Nov 28 11:50	6°♄29'38	48.35604 AU
minimum elong	3105 May 20 08:06	29°♄25'31 15°20'55		opposition	3112 Nov 29 00:45	6°♄29'02	-15°-2'00
max. Earth dist.	3105 May 21 05:39	29°♄26'44 50.36093 AU		direct	3113 Feb 18 11:41	5°♄30'41	
	3105 Jun 15 08:19	0°♄					
retrograde	3105 Aug 30 22:40	0°♄54'32		conjunction	3113 May 28 00:06	6°♄55'59	-14°-22'-31
	3105 Nov 18 09:28	30°♄		minimum elong	3113 May 28 00:17	6°♄55'59	14°22'32
opposition	3105 Nov 22 18:55	29°♄55'05 -15°-55'-5		max. Earth dist.	3113 May 28 14:19	6°♄56'47	50.27877 AU
min. Earth dist.	3105 Nov 21 23:44	29°♄55'59 48.43612 AU		retrograde	3113 Sep 07 12:49	8°♄24'34	
direct	3106 Feb 12 08:41	28°♄56'43		opposition	3113 Nov 30 05:00	7°♄25'17	-14°-53'-26
	3106 May 05 00:38	0°♄		min. Earth dist.	3113 Nov 29 17:08	7°♄25'51	48.33079 AU
				direct	3114 Feb 19 17:49	6°♄26'57	
conjunction	3106 May 21 12:56	0°♄22'11 -15°-14'-27					
minimum elong	3106 May 21 13:05	0°♄22'11 15°14'29		conjunction	3114 May 29 05:03	7°♄52'18	-14°-14'-9
max. Earth dist.	3106 May 22 09:51	0°♄23'22 50.36244 AU		minimum elong	3114 May 29 05:14	7°♄52'18	14°14'10
retrograde	3106 Sep 01 04:45	1°♄51'06		max. Earth dist.	3114 May 29 17:02	7°♄52'58	50.25250 AU
opposition	3106 Nov 23 23:15	0°♄51'40 -15°-48'-15		retrograde	3114 Sep 08 17:25	9°♄20'53	
min. Earth dist.	3106 Nov 23 04:13	0°♄52'33 48.43446 AU		opposition	3114 Dec 01 09:18	8°♄21'38	-14°-44'-39
	3107 Jan 19 10:02	30°♄		min. Earth dist.	3114 Nov 30 22:16	8°♄22'09	48.30075 AU
direct	3107 Feb 13 11:32	29°♄53'17		direct	3115 Feb 20 22:55	7°♄23'18	
	3107 Mar 10 08:15	0°♄					
conjunction	3107 May 22 17:55	1°♄18'42 -15°-7'-45		conjunction	3115 May 30 10:20	8°♄48'41	-14°-5'-35
minimum elong	3107 May 22 18:06	1°♄18'42 15°07'46		minimum elong	3115 May 30 10:31	8°♄48'41	14°05'37
				max. Earth dist.	3115 May 30 21:10	8°♄49'17	50.22100 AU

retrograde	3115 Sep 09 23:11	10°II17'17		direct	3124 Feb 29 12:11	15°II50'59	
opposition	3115 Dec 02 13:38	9°II18'03	-14°-35'-40				
min. Earth dist.	3115 Dec 02 04:58	9°II18'27	48.26527 AU	conjunction	3124 Jun 07 08:58	17°II16'52	-12°-38'-43
direct	3116 Feb 22 04:02	8°II19'43		minimum elong	3124 Jun 07 09:10	17°II16'53	12°38'45
				max. Earth dist.	3124 Jun 07 08:56	17°II16'52	49.73754 AU
conjunction	3116 May 30 15:39	9°II45'07	-13°-56'-49	retrograde	3124 Sep 17 19:14	18°II45'42	
minimum elong	3116 May 30 15:51	9°II45'07	13°56'50	opposition	3124 Dec 10 03:44	17°II46'21	-13°-4'-33
max. Earth dist.	3116 May 31 01:14	9°II45'39	50.18417 AU	min. Earth dist.	3124 Dec 10 03:43	17°II46'21	47.75200 AU
retrograde	3116 Sep 10 05:14	11°II13'43		direct	3125 Mar 01 18:01	16°II47'42	
opposition	3116 Dec 02 17:52	10°II14'29	-14°-26'-28				
min. Earth dist.	3116 Dec 02 09:36	10°II14'52	48.22432 AU	conjunction	3125 Jun 08 14:19	18°II13'42	-12°-27'-54
direct	3117 Feb 22 07:09	9°II16'07		minimum elong	3125 Jun 08 14:30	18°II13'43	12°27'55
				max. Earth dist.	3125 Jun 08 13:26	18°II13'39	49.66635 AU
conjunction	3117 May 31 20:45	10°II41'33	-13°-47'-51	retrograde	3125 Sep 19 00:10	19°II42'39	
minimum elong	3117 May 31 20:56	10°II41'33	13°47'52	opposition	3125 Dec 11 08:06	18°II43'17	-12°-53'-13
max. Earth dist.	3117 Jun 01 03:57	10°II41'57	50.14190 AU	min. Earth dist.	3125 Dec 11 10:09	18°II43'11	47.67729 AU
retrograde	3117 Sep 11 11:49	12°II10'08		direct	3126 Mar 02 23:45	17°II44'36	
opposition	3117 Dec 03 22:09	11°II10'54	-14°-17'-3				
min. Earth dist.	3117 Dec 03 15:53	11°II11'11	48.17829 AU	conjunction	3126 Jun 09 19:48	19°II10'43	-12°-16'-52
direct	3118 Feb 23 09:06	10°II12'30		minimum elong	3126 Jun 09 20:00	19°II10'43	12°16'53
				max. Earth dist.	3126 Jun 09 17:52	19°II10'36	49.59091 AU
conjunction	3118 Jun 02 01:59	11°II37'58	-13°-38'-40	retrograde	3126 Sep 20 06:39	20°II39'44	
minimum elong	3118 Jun 02 02:11	11°II37'59	13°38'41	opposition	3126 Dec 12 12:24	19°II40'22	-12°-41'-40
max. Earth dist.	3118 Jun 02 09:01	11°II38'22	50.09488 AU	min. Earth dist.	3126 Dec 12 14:49	19°II40'15	47.59792 AU
retrograde	3118 Sep 12 14:26	13°II06'33		direct	3127 Mar 04 03:23	18°II41'38	
opposition	3118 Dec 05 02:21	12°II07'18	-14°-7'-25				
min. Earth dist.	3118 Dec 04 21:01	12°II07'33	48.12769 AU	conjunction	3127 Jun 11 01:19	20°II07'52	-12°-5'-36
direct	3119 Feb 24 15:05	11°II08'51		minimum elong	3127 Jun 11 01:30	20°II07'52	12°05'37
				max. Earth dist.	3127 Jun 10 20:56	20°II07'37	49.51040 AU
conjunction	3119 Jun 03 07:01	12°II34'22	-13°-29'-16	retrograde	3127 Sep 21 15:06	21°II36'58	
minimum elong	3119 Jun 03 07:12	12°II34'22	13°29'17	opposition	3127 Dec 13 16:58	20°II37'33	-12°-29'-54
max. Earth dist.	3119 Jun 03 12:04	12°II34'39	50.04368 AU	min. Earth dist.	3127 Dec 13 21:32	20°II37'21	47.51333 AU
retrograde	3119 Sep 13 17:57	14°II02'58		direct	3128 Mar 04 05:02	19°II38'45	
opposition	3119 Dec 06 06:33	13°II03'41	-13°-57'-33				
min. Earth dist.	3119 Dec 06 01:56	13°II03'54	48.07321 AU	conjunction	3128 Jun 11 07:06	21°II05'07	-11°-54'-9
direct	3120 Feb 25 20:31	12°II05'12		minimum elong	3128 Jun 11 07:18	21°II05'07	11°54'10
				max. Earth dist.	3128 Jun 11 02:13	21°II04'50	49.42456 AU
conjunction	3120 Jun 03 12:15	13°II30'45	-13°-19'-38	retrograde	3128 Sep 21 19:15	22°II34'17	
minimum elong	3120 Jun 03 12:27	13°II30'45	13°19'38	opposition	3128 Dec 13 21:21	21°II34'49	-12°-17'-55
max. Earth dist.	3120 Jun 03 16:28	13°II30'59	49.98864 AU	min. Earth dist.	3128 Dec 14 03:05	21°II34'33	47.42331 AU
retrograde	3120 Sep 13 22:49	14°II59'23		direct	3129 Mar 05 10:17	20°II35'56	
opposition	3120 Dec 06 10:44	14°II00'04	-13°-47'-27				
min. Earth dist.	3120 Dec 06 07:51	14°II00'12	48.01514 AU	conjunction	3129 Jun 12 12:43	22°II02'24	-11°-42'-28
direct	3121 Feb 26 02:37	13°II01'33		minimum elong	3129 Jun 12 12:55	22°II02'24	11°42'29
				max. Earth dist.	3129 Jun 12 05:30	22°II01'59	49.33358 AU
conjunction	3121 Jun 04 17:26	14°II27'09	-13°-9'-46	retrograde	3129 Sep 22 23:42	23°II31'38	
minimum elong	3121 Jun 04 17:37	14°II27'10	13°09'47	opposition	3129 Dec 15 01:52	22°II32'06	-12°-5'-42
max. Earth dist.	3121 Jun 04 21:01	14°II27'22	49.93042 AU	min. Earth dist.	3129 Dec 15 08:33	22°II31'47	47.32843 AU
retrograde	3121 Sep 15 06:31	15°II55'49		direct	3130 Mar 06 15:16	21°II33'07	
opposition	3121 Dec 07 14:54	14°II56'30	-13°-37'-6				
min. Earth dist.	3121 Dec 07 11:55	14°II56'38	47.95395 AU	conjunction	3130 Jun 13 18:16	22°II59'42	-11°-30'-35
direct	3122 Feb 27 04:31	13°II57'56		minimum elong	3130 Jun 13 18:27	22°II59'43	11°30'37
				max. Earth dist.	3130 Jun 13 10:01	22°II59'14	49.23780 AU
conjunction	3122 Jun 05 22:23	15°II23'37	-12°-59'-39	retrograde	3130 Sep 24 02:54	24°II29'02	
minimum elong	3122 Jun 05 22:36	15°II23'38	12°59'41	opposition	3130 Dec 16 06:30	23°II29'25	-11°-53'-16
max. Earth dist.	3122 Jun 06 00:15	15°II23'44	49.86912 AU	min. Earth dist.	3130 Dec 16 15:04	23°II29'01	47.22904 AU
retrograde	3122 Sep 16 13:25	16°II52'20		direct	3131 Mar 07 22:46	22°II30'20	
opposition	3122 Dec 08 19:17	15°II53'00	-13°-26'-30				
min. Earth dist.	3122 Dec 08 17:54	15°II53'04	47.88984 AU	conjunction	3131 Jun 15 00:01	23°II57'02	-11°-18'-28
direct	3123 Feb 28 06:06	14°II54'25		minimum elong	3131 Jun 15 00:13	23°II57'03	11°18'29
				max. Earth dist.	3131 Jun 14 15:01	23°II56'31	49.13800 AU
conjunction	3123 Jun 07 03:43	16°II20'11	-12°-49'-18	retrograde	3131 Sep 25 09:22	25°II26'28	
minimum elong	3123 Jun 07 03:54	16°II20'11	12°49'19	opposition	3131 Dec 17 10:52	24°II26'46	-11°-40'-35
max. Earth dist.	3123 Jun 07 05:36	16°II20'17	49.80490 AU	min. Earth dist.	3131 Dec 17 19:35	24°II26'21	47.12587 AU
retrograde	3123 Sep 17 15:44	17°II48'57		direct	3132 Mar 08 02:50	23°II27'35	
opposition	3123 Dec 09 23:27	16°II49'36	-13°-15'-39				
min. Earth dist.	3123 Dec 09 22:43	16°II49'38	47.82259 AU	conjunction	3132 Jun 15 05:44	24°II54'25	-11°-6'-7

minimum elong	3132 Jun 15 05:55	24°II54'26	11°06'08	max. Earth dist.	3140 Jun 22 10:51	2°☾40'09	48.09409 AU
max. Earth dist.	3132 Jun 14 18:43	24°II53'48	49.03454 AU				
retrograde	3132 Sep 25 17:22	26°II23'57		conjunction	3140 Jun 23 06:50	2°☾41'19	-9°-18'-33
opposition	3132 Dec 17 15:32	25°II24'11	-11°-27'-40	minimum elong	3140 Jun 23 07:00	2°☾41'19	9°18'34
min. Earth dist.	3132 Dec 18 02:02	25°II23'42	47.01941 AU	retrograde	3140 Oct 03 14:50	4°☾12'19	
direct	3133 Mar 09 04:36	24°II24'54		opposition	3140 Dec 25 06:59	3°☾12'06	-9°-35'-5
				min. Earth dist.	3140 Dec 26 02:11	3°☾11'11	46.05236 AU
conjunction	3133 Jun 16 11:31	25°II51'54	-10°-53'-32	direct	3141 Mar 16 22:25	2°☾12'08	
minimum elong	3133 Jun 16 11:43	25°II51'55	10°53'32				
max. Earth dist.	3133 Jun 16 00:33	25°II51'17	48.92799 AU	conjunction	3141 Jun 24 13:26	3°☾41'00	-9°-4'-3
retrograde	3133 Sep 26 21:14	27°II21'34		minimum elong	3141 Jun 24 13:36	3°☾41'00	9°04'05
opposition	3133 Dec 18 20:08	26°II21'43	-11°-14'-29	max. Earth dist.	3141 Jun 23 16:21	3°☾39'46	47.95741 AU
min. Earth dist.	3133 Dec 19 07:00	26°II21'12	46.90996 AU	retrograde	3141 Oct 04 21:30	5°☾12'13	
direct	3134 Mar 10 10:38	25°II22'21		opposition	3141 Dec 26 12:15	4°☾11'54	-9°-19'-55
				min. Earth dist.	3141 Dec 27 07:50	4°☾10'57	45.91181 AU
conjunction	3134 Jun 17 17:15	26°II49'32	-10°-40'-41	direct	3142 Mar 18 04:07	3°☾11'47	
minimum elong	3134 Jun 17 17:26	26°II49'32	10°40'42				
max. Earth dist.	3134 Jun 17 04:33	26°II48'48	48.81878 AU	conjunction	3142 Jun 25 20:09	4°☾40'53	-8°-49'-19
retrograde	3134 Sep 28 01:39	28°II19'20		minimum elong	3142 Jun 25 20:19	4°☾40'54	8°49'20
opposition	3134 Dec 20 00:48	27°II19'26	-11°-1'-2	max. Earth dist.	3142 Jun 24 20:49	4°☾39'32	47.81602 AU
min. Earth dist.	3134 Dec 20 12:16	27°II18'54	46.79801 AU	retrograde	3142 Oct 06 07:25	6°☾12'19	
direct	3135 Mar 11 16:11	26°II19'59		opposition	3142 Dec 27 17:41	5°☾11'53	-9°-4'-31
				min. Earth dist.	3142 Dec 28 15:22	5°☾10'50	45.76695 AU
conjunction	3135 Jun 18 23:11	27°II47'22	-10°-27'-36	direct	3143 Mar 19 05:49	4°☾11'37	
minimum elong	3135 Jun 18 23:23	27°II47'23	10°27'37	max. Earth dist.	3143 Jun 26 03:31	5°☾39'37	47.67057 AU
max. Earth dist.	3135 Jun 18 09:52	27°II46'36	48.70690 AU				
retrograde	3135 Sep 29 06:37	29°II17'21		conjunction	3143 Jun 27 03:05	5°☾40'59	-8°-34'-21
opposition	3135 Dec 21 05:41	28°II17'24	-10°-47'-20	minimum elong	3143 Jun 27 03:15	5°☾41'00	8°34'22
min. Earth dist.	3135 Dec 21 18:46	28°II16'47	46.68328 AU	retrograde	3143 Oct 07 13:28	7°☾12'37	
direct	3136 Mar 11 22:23	27°II17'53		opposition	3143 Dec 28 23:09	6°☾12'04	-8°-48'-51
				min. Earth dist.	3143 Dec 29 21:22	6°☾10'59	45.61818 AU
conjunction	3136 Jun 19 05:16	28°II45'29	-10°-14'-16	direct	3144 Mar 19 12:09	5°☾11'38	
minimum elong	3136 Jun 19 05:27	28°II45'29	10°14'16	max. Earth dist.	3144 Jun 26 08:27	6°☾39'47	47.52152 AU
max. Earth dist.	3136 Jun 18 15:13	28°II44'40	48.59228 AU				
	3136 Aug 21 18:04	0°☾		conjunction	3144 Jun 27 10:00	6°☾41'16	-8°-19'-8
retrograde	3136 Sep 29 13:28	0°☾15'39		minimum elong	3144 Jun 27 10:10	6°☾41'17	8°19'09
	3136 Nov 07 17:51	30°RII		retrograde	3144 Oct 07 19:41	8°☾13'07	
opposition	3136 Dec 21 10:22	29°II15'41	-10°-33'-22	opposition	3144 Dec 29 04:39	7°☾12'26	-8°-32'-55
min. Earth dist.	3136 Dec 21 23:28	29°II15'03	46.56556 AU	min. Earth dist.	3144 Dec 30 03:50	7°☾11'19	45.46621 AU
direct	3137 Mar 13 02:24	28°II16'05		direct	3145 Mar 20 18:09	6°☾11'51	
conjunction	3137 Jun 20 11:23	29°II43'56	-10°00'-41	conjunction	3145 Jun 28 17:05	7°☾41'47	-8°-3'-41
minimum elong	3137 Jun 20 11:34	29°II43'56	10°00'42	minimum elong	3145 Jun 28 17:15	7°☾41'47	8°03'42
max. Earth dist.	3137 Jun 19 19:20	29°II43'00	48.47431 AU	max. Earth dist.	3145 Jun 27 14:52	7°☾40'14	47.36932 AU
	3137 Jul 02 04:23	0°☾		retrograde	3145 Oct 09 00:04	9°☾13'52	
retrograde	3137 Sep 30 22:43	1°☾14'19		opposition	3145 Dec 30 10:28	8°☾13'03	-8°-16'-43
opposition	3137 Dec 22 15:25	0°☾14'18	-10°-19'-10	min. Earth dist.	3145 Dec 31 11:05	8°☾11'51	45.31133 AU
min. Earth dist.	3137 Dec 23 06:29	0°☾13'35	46.44429 AU	direct	3146 Mar 22 02:20	7°☾12'19	
	3138 Jan 04 05:12	30°RII		max. Earth dist.	3146 Jun 28 21:14	8°☾40'57	47.21457 AU
direct	3138 Mar 14 04:17	29°II14'38					
	3138 May 20 11:31	0°☾		conjunction	3146 Jun 30 00:08	8°☾42'32	-7°-47'-57
conjunction	3138 Jun 21 17:39	0°☾42'44	-9°-46'-52	minimum elong	3146 Jun 30 00:18	8°☾42'32	7°47'58
minimum elong	3138 Jun 21 17:49	0°☾42'45	9°46'52	retrograde	3146 Oct 10 06:20	10°☾14'53	
max. Earth dist.	3138 Jun 21 01:25	0°☾41'48	48.35239 AU	opposition	3146 Dec 31 16:17	9°☾13'57	-8°00'-14
retrograde	3138 Oct 02 04:55	2°☾13'19		min. Earth dist.	3147 Jan 01 16:44	9°☾12'45	45.15394 AU
opposition	3138 Dec 23 20:30	1°☾13'15	-10°-4'-42	direct	3147 Mar 23 08:53	8°☾13'03	
min. Earth dist.	3138 Dec 24 12:28	1°☾12'30	46.31860 AU	max. Earth dist.	3147 Jun 30 02:46	9°☾41'54	47.05720 AU
direct	3139 Mar 15 09:09	0°☾13'31					
max. Earth dist.	3139 Jun 22 05:26	1°☾40'48	48.22582 AU	conjunction	3147 Jul 01 07:28	9°☾43'35	-7°-31'-58
				minimum elong	3147 Jul 01 07:37	9°☾43'36	7°32'00
conjunction	3139 Jun 23 00:06	1°☾41'53	-9°-32'-49	retrograde	3147 Oct 11 15:32	11°☾16'14	
minimum elong	3139 Jun 23 00:17	1°☾41'53	9°32'51	opposition	3148 Jan 01 22:17	10°☾15'11	-7°-43'-30
retrograde	3139 Oct 03 11:41	3°☾12'40		min. Earth dist.	3148 Jan 03 00:33	10°☾13'54	44.99403 AU
opposition	3139 Dec 25 01:36	2°☾12'33	-9°-50'-1	direct	3148 Mar 23 12:53	9°☾14'09	
min. Earth dist.	3139 Dec 25 18:50	2°☾11'43	46.18809 AU	max. Earth dist.	3148 Jun 30 10:27	10°☾43'20	46.89723 AU
direct	3140 Mar 15 13:57	1°☾12'41		conjunction	3148 Jul 01 15:06	10°☾45'01	-7°-15'-44

minimum elong	3148 Jul 01 15:16	10°  45'02	7°15'46	min. Earth dist.	3157 Jan 11 23:27	19°  44'07	43.37827 AU
retrograde	3148 Oct 12 00:21	12°  17'58		direct	3157 Apr 02 02:15	18°  43'16	
opposition	3149 Jan 02 04:24	11°  16'48	-7°-26'-28	max. Earth dist.	3157 Jul 10 01:17	20°  15'17	45.27370 AU
min. Earth dist.	3149 Jan 03 07:04	11°  15'30	44.83125 AU				
direct	3149 Mar 24 17:42	10°  15'38		conjunction	3157 Jul 11 19:02	20°  17'50	-4°-38'-18
				minimum elong	3157 Jul 11 19:09	20°  17'51	4°38'18
conjunction	3149 Jul 02 22:36	11°  46'53	-6°-59'-14	retrograde	3157 Oct 22 02:07	21°  54'03	
minimum elong	3149 Jul 02 22:45	11°  46'53	6°59'15	opposition	3158 Jan 11 19:00	20°  51'31	-4°-41'-20
max. Earth dist.	3149 Jul 01 15:51	11°  45'04	46.73419 AU	min. Earth dist.	3158 Jan 13 08:55	20°  49'36	43.17992 AU
retrograde	3149 Oct 13 09:58	13°  20'09		direct	3158 Apr 03 09:01	19°  48'38	
opposition	3150 Jan 03 10:41	12°  18'53	-7°-9'-11	max. Earth dist.	3158 Jul 11 10:46	21°  21'08	45.07516 AU
min. Earth dist.	3150 Jan 04 14:31	12°  17'31	44.66521 AU				
direct	3150 Mar 25 22:26	11°  17'35		conjunction	3158 Jul 13 04:25	21°  23'41	-4°-19'-31
max. Earth dist.	3150 Jul 02 22:58	12°  47'20	46.56733 AU	minimum elong	3158 Jul 13 04:31	21°  23'41	4°19'33
				retrograde	3158 Oct 23 12:53	23°  00'19	
conjunction	3150 Jul 04 06:35	12°  49'13	-6°-42'-29	opposition	3159 Jan 13 02:42	21°  57'36	-4°-21'-37
minimum elong	3150 Jul 04 06:44	12°  49'13	6°42'31	min. Earth dist.	3159 Jan 14 16:37	21°  55'41	42.97941 AU
retrograde	3150 Oct 14 15:17	14°  22'49		direct	3159 Apr 04 15:03	20°  54'30	
opposition	3151 Jan 04 17:10	13°  21'27	-6°-51'-38	max. Earth dist.	3159 Jul 12 18:14	22°  27'22	44.87455 AU
min. Earth dist.	3151 Jan 05 22:46	13°  19'59	44.49500 AU				
direct	3151 Mar 27 06:52	12°  19'59		conjunction	3159 Jul 14 13:57	22°  30'03	-4°00'-29
max. Earth dist.	3151 Jul 04 05:48	13°  50'03	46.39611 AU	minimum elong	3159 Jul 14 14:03	22°  30'04	4°00'30
				retrograde	3159 Oct 25 01:47	24°  07'09	
conjunction	3151 Jul 05 14:45	13°  52'01	-6°-25'-29	opposition	3160 Jan 14 10:46	23°  04'15	-4°-1'-36
minimum elong	3151 Jul 05 14:54	13°  52'01	6°25'30	min. Earth dist.	3160 Jan 16 01:51	23°  02'16	42.77699 AU
retrograde	3151 Oct 15 22:17	15°  25'58		direct	3160 Apr 04 19:58	22°  00'56	
opposition	3152 Jan 05 23:46	14°  24'28	-6°-33'-49	max. Earth dist.	3160 Jul 13 03:53	23°  34'19	44.67181 AU
min. Earth dist.	3152 Jan 07 05:56	14°  22'59	44.32011 AU				
direct	3152 Mar 27 14:34	13°  22'51		conjunction	3160 Jul 14 23:51	23°  37'02	-3°-41'-10
max. Earth dist.	3152 Jul 04 11:42	14°  53'09	46.21983 AU	minimum elong	3160 Jul 14 23:56	23°  37'02	3°41'11
				retrograde	3160 Oct 25 10:28	25°  14'36	
conjunction	3152 Jul 05 23:06	14°  55'16	-6°-8'-15	opposition	3161 Jan 14 19:00	24°  11'32	-3°-41'-18
minimum elong	3152 Jul 05 23:15	14°  55'17	6°08'16	min. Earth dist.	3161 Jan 16 11:05	24°  09'29	42.57233 AU
retrograde	3152 Oct 16 08:26	16°  29'35		direct	3161 Apr 06 05:14	23°  08'00	
opposition	3153 Jan 06 06:38	15°  27'57	-6°-15'-45	max. Earth dist.	3161 Jul 14 12:49	24°  41'51	44.46683 AU
min. Earth dist.	3153 Jan 07 15:09	15°  26'20	44.14022 AU				
direct	3153 Mar 28 18:58	14°  26'08		conjunction	3161 Jul 16 09:53	24°  44'39	-3°-21'-35
max. Earth dist.	3153 Jul 05 19:47	15°  56'49	46.03869 AU	minimum elong	3161 Jul 16 09:59	24°  44'40	3°21'37
				retrograde	3161 Oct 26 18:57	26°  22'43	
conjunction	3153 Jul 07 07:41	15°  58'58	-5°-50'-46	opposition	3162 Jan 16 03:26	25°  19'29	-3°-20'-43
minimum elong	3153 Jul 07 07:49	15°  58'58	5°50'47	min. Earth dist.	3162 Jan 17 19:53	25°  17'25	42.36524 AU
retrograde	3153 Oct 17 16:52	17°  33'38		direct	3162 Apr 07 15:46	24°  15'45	
opposition	3154 Jan 07 13:35	16°  31'50	-5°-57'-24	max. Earth dist.	3162 Jul 15 21:23	25°  50'03	44.25880 AU
min. Earth dist.	3154 Jan 08 22:35	16°  30'11	43.95556 AU				
direct	3154 Mar 30 01:42	15°  29'49		conjunction	3162 Jul 17 20:12	25°  52'58	-3°-1'-45
max. Earth dist.	3154 Jul 07 01:55	17°  00'46	45.85301 AU	minimum elong	3162 Jul 17 20:16	25°  52'59	3°01'45
				retrograde	3162 Oct 28 04:26	27°  31'34	
conjunction	3154 Jul 08 16:08	17°  03'04	-5°-33'-2	opposition	3163 Jan 17 12:18	26°  28'09	-2°-59'-51
minimum elong	3154 Jul 08 16:16	17°  03'04	5°33'04	min. Earth dist.	3163 Jan 19 06:53	26°  25'57	42.15482 AU
retrograde	3154 Oct 19 02:59	18°  38'06		direct	3163 Apr 09 00:27	25°  24'11	
opposition	3155 Jan 08 20:44	17°  36'07	-5°-38'-48	max. Earth dist.	3163 Jul 17 07:43	26°  59'01	44.04715 AU
min. Earth dist.	3155 Jan 10 07:14	17°  34'24	43.76670 AU				
direct	3155 Mar 31 07:59	16°  33'54		conjunction	3163 Jul 19 07:03	27°  01'59	-2°-41'-39
max. Earth dist.	3155 Jul 08 10:05	18°  05'13	45.66316 AU	minimum elong	3163 Jul 19 07:07	27°  01'59	2°41'40
				retrograde	3163 Oct 29 14:57	28°  41'07	
conjunction	3155 Jul 10 01:04	18°  07'34	-5°-15'-3	opposition	3164 Jan 18 21:12	27°  37'29	-2°-38'-42
minimum elong	3155 Jul 10 01:11	18°  07'35	5°15'03	min. Earth dist.	3164 Jan 20 16:08	27°  35'16	41.94051 AU
retrograde	3155 Oct 20 09:35	19°  42'58		direct	3164 Apr 09 08:51	26°  33'16	
opposition	3156 Jan 10 03:56	18°  40'48	-5°-19'-56	max. Earth dist.	3164 Jul 17 16:11	28°  08'31	43.83135 AU
min. Earth dist.	3156 Jan 11 15:56	18°  39'00	43.57400 AU				
direct	3156 Mar 31 17:45	17°  38'22		conjunction	3164 Jul 19 18:03	28°  11'40	-2°-21'-17
max. Earth dist.	3156 Jul 08 17:53	19°  10'03	45.46994 AU	minimum elong	3164 Jul 19 18:07	28°  11'40	2°21'18
				retrograde	3164 Oct 30 04:41	29°  51'20	
conjunction	3156 Jul 10 10:02	19°  12'29	-4°-56'-48	opposition	3165 Jan 19 06:35	28°  47'29	-2°-17'-16
minimum elong	3156 Jul 10 10:09	19°  12'30	4°56'50	min. Earth dist.	3165 Jan 21 03:24	28°  45'10	41.72212 AU
retrograde	3156 Oct 20 17:07	20°  48'16		direct	3165 Apr 10 15:30	27°  43'00	
opposition	3157 Jan 10 11:18	19°  45'56	-5°00'-47	max. Earth dist.	3165 Jul 19 02:54	29°  18'48	43.61135 AU

conjunction	3165 Jul 21 05:18	29° 28 21'59	-2°00'-40	opposition	3173 Jan 28 18:51	8° 0 31'17	0°44'10
minimum elong	3165 Jul 21 05:21	29° 28 22'00	2°00'42	min. Earth dist.	3173 Jan 30 22:56	8° 0 28'29	39.87313 AU
	3165 Aug 15 18:31	0° 0		direct	3173 Apr 20 03:29	7° 0 24'22	
retrograde	3165 Oct 31 16:34	1° 0 02'11		max. Earth dist.	3173 Jul 28 23:25	9° 0 05'05	41.75541 AU
	3166 Jan 19 03:32	30° 0 0					
opposition	3166 Jan 20 16:13	29° 28 58'05	-1°-55'-34	conjunction	3173 Jul 31 09:42	9° 0 08'58	0°53'26
min. Earth dist.	3166 Jan 22 14:08	29° 28 55'42	41.49963 AU	minimum elong	3173 Jul 31 09:41	9° 0 08'58	0°53'25
direct	3166 Apr 12 01:33	28° 28 53'19		retrograde	3173 Nov 10 20:38	10° 0 54'13	
	3166 Jun 30 19:05	0° 0		opposition	3174 Jan 30 06:47	9° 0 48'05	1°08'04
max. Earth dist.	3166 Jul 20 12:36	0° 0 29'36	43.38759 AU	min. Earth dist.	3174 Feb 01 10:44	9° 0 45'16	39.63502 AU
				direct	3174 Apr 21 15:47	8° 0 40'53	
conjunction	3166 Jul 22 16:47	0° 0 32'55	-1°-39'-48	max. Earth dist.	3174 Jul 30 11:41	10° 0 22'17	41.51603 AU
minimum elong	3166 Jul 22 16:50	0° 0 32'56	1°39'49				
retrograde	3166 Nov 02 05:11	2° 0 13'39		conjunction	3174 Aug 01 23:55	10° 0 26'19	1°16'18
opposition	3167 Jan 22 01:52	1° 0 09'18	-1°-33'-35	minimum elong	3174 Aug 01 23:53	10° 0 26'19	1°16'18
min. Earth dist.	3167 Jan 24 00:29	1° 0 06'52	41.27371 AU	retrograde	3174 Nov 12 11:03	12° 0 12'22	
direct	3167 Apr 13 11:26	0° 0 04'13		opposition	3175 Jan 31 19:10	11° 0 05'58	1°32'15
max. Earth dist.	3167 Jul 21 23:01	1° 0 41'01	43.16032 AU	min. Earth dist.	3175 Feb 03 01:08	11° 0 03'02	39.39483 AU
				direct	3175 Apr 23 01:44	9° 0 58'29	
conjunction	3167 Jul 24 04:40	1° 0 44'28	-1°-18'-40	max. Earth dist.	3175 Aug 01 02:23	11° 0 40'42	41.27414 AU
minimum elong	3167 Jul 24 04:42	1° 0 44'28	1°18'42				
retrograde	3167 Nov 03 14:12	3° 0 25'45		conjunction	3175 Aug 03 14:45	11° 0 44'47	1°39'24
opposition	3168 Jan 23 12:01	2° 0 21'09	-1°-11'-19	minimum elong	3175 Aug 03 14:42	11° 0 44'46	1°39'24
min. Earth dist.	3168 Jan 25 12:29	2° 0 18'36	41.04467 AU	retrograde	3175 Nov 14 02:50	13° 0 23'37	
direct	3168 Apr 13 22:58	1° 0 15'45		opposition	3176 Feb 02 08:01	12° 0 24'58	1°56'40
max. Earth dist.	3168 Jul 22 10:50	2° 0 53'09	42.93031 AU	min. Earth dist.	3176 Feb 04 14:26	12° 0 21'59	39.15184 AU
				direct	3176 Apr 23 12:43	11° 0 17'09	
conjunction	3168 Jul 24 16:45	2° 0 56'38	0°-57'-17	max. Earth dist.	3176 Aug 01 15:05	13° 0 00'05	41.02923 AU
minimum elong	3168 Jul 24 16:46	2° 0 56'38	0°57'18				
retrograde	3168 Nov 04 00:40	4° 0 38'30		conjunction	3176 Aug 04 05:47	13° 0 04'20	2°02'44
opposition	3169 Jan 23 22:14	3° 0 33'37	0°-48'-46	minimum elong	3176 Aug 04 05:43	13° 0 04'20	2°02'44
min. Earth dist.	3169 Jan 25 22:40	3° 0 31'04	40.81322 AU	retrograde	3176 Nov 14 20:37	14° 0 51'59	
direct	3169 Apr 15 09:49	2° 0 27'55		opposition	3177 Feb 02 21:15	13° 0 45'03	2°21'21
max. Earth dist.	3169 Jul 23 21:03	4° 0 05'50	42.69806 AU	min. Earth dist.	3177 Feb 05 05:02	13° 0 41'59	38.90591 AU
				direct	3177 Apr 24 23:05	12° 0 36'54	
conjunction	3169 Jul 26 05:01	4° 0 09'28	0°-35'-39	max. Earth dist.	3177 Aug 03 05:57	14° 0 20'38	40.78114 AU
minimum elong	3169 Jul 26 05:02	4° 0 09'28	0°35'40				
retrograde	3169 Nov 05 14:49	5° 0 51'57		conjunction	3177 Aug 05 21:26	14° 0 24'58	2°26'17
opposition	3170 Jan 25 08:55	4° 0 46'48	0°-25'-57	minimum elong	3177 Aug 05 21:22	14° 0 24'58	2°26'18
min. Earth dist.	3170 Jan 27 10:53	4° 0 44'09	40.58005 AU		3177 Aug 27 13:13	15° 0	
direct	3170 Apr 16 17:03	3° 0 40'46		retrograde	3177 Nov 16 12:18	16° 0 13'25	
max. Earth dist.	3170 Jul 25 09:54	5° 0 19'23	42.46419 AU	opposition	3178 Feb 04 10:59	15° 0 06'11	2°46'16
				min. Earth dist.	3178 Feb 06 20:04	15° 0 03'02	38.65694 AU
conjunction	3170 Jul 27 17:40	5° 0 23'01	0°-13'-46		3178 Feb 09 02:56	15° 0 0	
minimum elong	3170 Jul 27 17:40	5° 0 23'01	0°13'47	direct	3178 Apr 26 13:56	13° 0 57'40	
behind sun begin	3170 Jul 27 14:24	5° 0 22'49			3178 Jul 09 10:38	15° 0	
behind sun end	3170 Jul 27 20:57	5° 0 23'13		max. Earth dist.	3178 Aug 04 20:43	15° 0 42'12	40.53028 AU
retrograde	3170 Nov 07 03:28	7° 0 06'09					
opposition	3171 Jan 26 19:53	6° 0 00'44	0°-2'-51	conjunction	3178 Aug 07 13:20	15° 0 46'39	2°50'04
min. Earth dist.	3171 Jan 28 22:05	5° 0 58'04	40.34543 AU	minimum elong	3178 Aug 07 13:15	15° 0 46'39	2°50'03
asc. node	3171 Mar 12 20:56	5° 0 10'01		retrograde	3178 Nov 18 04:46	17° 0 35'55	
direct	3171 Apr 18 03:58	4° 0 54'24		opposition	3179 Feb 06 01:00	16° 0 28'21	3°11'26
max. Earth dist.	3171 Jul 26 21:25	6° 0 33'38	42.22912 AU	min. Earth dist.	3179 Feb 08 10:26	16° 0 25'10	38.40543 AU
				direct	3179 Apr 28 06:02	15° 0 19'28	
conjunction	3171 Jul 29 06:39	6° 0 37'24	0°08'27	max. Earth dist.	3179 Aug 06 11:26	17° 0 04'46	40.27676 AU
minimum elong	3171 Jul 29 06:38	6° 0 37'24	0°08'26				
behind sun begin	3171 Jul 29 00:57	6° 0 37'03		conjunction	3179 Aug 09 05:49	17° 0 09'23	3°14'02
behind sun end	3171 Jul 29 12:20	6° 0 37'45		minimum elong	3179 Aug 09 05:44	17° 0 09'22	3°14'02
retrograde	3171 Nov 08 18:32	8° 0 21'12		retrograde	3179 Nov 19 20:17	18° 0 59'28	
opposition	3172 Jan 28 07:05	7° 0 15'32	0°20'31	opposition	3180 Feb 07 15:29	17° 0 51'34	3°36'49
min. Earth dist.	3172 Jan 30 09:49	7° 0 12'49	40.10986 AU	min. Earth dist.	3180 Feb 10 02:53	17° 0 48'15	38.15175 AU
direct	3172 Apr 18 14:55	6° 0 08'54		direct	3180 Apr 28 20:16	16° 0 42'17	
max. Earth dist.	3172 Jul 27 10:10	7° 0 48'51	41.99285 AU	max. Earth dist.	3180 Aug 07 04:20	18° 0 28'29	40.02141 AU
conjunction	3172 Jul 29 20:07	7° 0 52'41	0°30'48	conjunction	3180 Aug 09 22:43	18° 0 33'08	3°38'12
minimum elong	3172 Jul 29 20:06	7° 0 52'41	0°30'48	minimum elong	3180 Aug 09 22:37	18° 0 33'07	3°38'11
retrograde	3172 Nov 09 07:40	9° 0 37'12		retrograde	3180 Nov 20 11:18	20° 0 24'05	

opposition	3181 Feb 08 06:24	19°♏15'50	4°02'25	opposition	3189 Feb 20 00:21	1°♐15'00	7°33'02
min. Earth dist.	3181 Feb 10 17:34	19°♏12'30	37.89661 AU	min. Earth dist.	3189 Feb 22 16:58	1°♐11'10	35.84823 AU
direct	3181 Apr 30 11:20	18°♏06'08		direct	3189 May 11 19:35	0°♐02'01	
max. Earth dist.	3181 Aug 08 19:33	19°♏53'07	39.76477 AU	max. Earth dist.	3189 Aug 21 04:10	1°♐57'19	37.70264 AU
conjunction	3181 Aug 11 15:45	19°♏57'56	4°02'33	conjunction	3189 Aug 24 05:21	2°♐02'51	7°21'53
minimum elong	3181 Aug 11 15:38	19°♏57'56	4°02'33	minimum elong	3189 Aug 24 05:06	2°♐02'50	7°21'53
retrograde	3181 Nov 22 05:44	21°♏49'48		retrograde	3189 Dec 05 00:40	4°♐02'58	
opposition	3182 Feb 09 21:49	20°♏41'10	4°28'14	opposition	3190 Feb 21 20:21	2°♐51'30	7°59'50
min. Earth dist.	3182 Feb 12 10:16	20°♏37'45	37.64071 AU	min. Earth dist.	3190 Feb 24 13:56	2°♐47'36	35.58967 AU
direct	3182 May 01 23:32	19°♏31'03		direct	3190 May 13 14:34	1°♐38'04	
max. Earth dist.	3182 Aug 10 13:41	21°♏19'02	39.50746 AU	max. Earth dist.	3190 Aug 23 01:34	3°♐34'30	37.44174 AU
conjunction	3182 Aug 13 09:35	21°♏23'51	4°27'03	conjunction	3190 Aug 26 03:47	3°♐40'09	7°47'07
minimum elong	3182 Aug 13 09:26	21°♏23'51	4°27'03	minimum elong	3190 Aug 26 03:32	3°♐40'08	7°47'06
retrograde	3182 Nov 23 23:57	23°♏16'37		retrograde	3190 Dec 07 01:21	5°♐41'25	
opposition	3183 Feb 11 13:37	22°♏07'38	4°54'13	opposition	3191 Feb 23 16:41	4°♐29'33	8°26'40
min. Earth dist.	3183 Feb 14 02:27	22°♏04'10	37.38449 AU	min. Earth dist.	3191 Feb 26 10:26	4°♐25'36	35.33056 AU
direct	3183 May 03 14:17	20°♏57'06		direct	3191 May 15 11:37	3°♐15'39	
max. Earth dist.	3183 Aug 12 06:41	22°♏46'00	39.25014 AU	max. Earth dist.	3191 Aug 24 23:36	5°♐13'13	37.18019 AU
conjunction	3183 Aug 15 03:47	22°♏50'57	4°51'43	conjunction	3191 Aug 28 02:59	5°♐19'01	8°12'21
minimum elong	3183 Aug 15 03:38	22°♏50'56	4°51'43	minimum elong	3191 Aug 28 02:42	5°♐19'00	8°12'21
retrograde	3183 Nov 25 20:29	24°♏44'39		retrograde	3191 Dec 09 01:01	7°♐21'26	
opposition	3184 Feb 13 05:59	23°♏35'19	5°20'22	opposition	3192 Feb 25 13:56	6°♐09'09	8°53'29
min. Earth dist.	3184 Feb 15 18:58	23°♏31'49	37.12860 AU	min. Earth dist.	3192 Feb 28 09:09	6°♐05'05	35.07124 AU
direct	3184 May 04 05:22	22°♏24'22		direct	3192 May 16 09:00	4°♐54'47	
max. Earth dist.	3184 Aug 13 00:52	24°♏14'16	38.99295 AU	max. Earth dist.	3192 Aug 25 23:32	6°♐53'36	36.91882 AU
conjunction	3184 Aug 15 22:33	24°♏19'18	5°16'31	conjunction	3192 Aug 29 02:35	6°♐59'27	8°37'32
minimum elong	3184 Aug 15 22:22	24°♏19'17	5°16'30	minimum elong	3192 Aug 29 02:18	6°♐59'25	8°37'32
retrograde	3184 Nov 26 15:25	26°♏14'00		retrograde	3192 Dec 10 00:46	9°♐03'02	
opposition	3185 Feb 13 22:59	25°♏04'18	5°46'40	opposition	3193 Feb 26 11:39	7°♐50'20	9°20'17
min. Earth dist.	3185 Feb 16 13:05	25°♏00'44	36.87300 AU	min. Earth dist.	3193 Mar 01 06:13	7°♐46'17	34.81253 AU
direct	3185 May 05 23:23	23°♏52'58		direct	3193 May 18 07:13	6°♐35'29	
max. Earth dist.	3185 Aug 14 20:12	25°♏43'56	38.73615 AU	max. Earth dist.	3193 Aug 27 22:27	8°♐35'28	36.65824 AU
conjunction	3185 Aug 17 17:50	25°♏49'01	5°41'25	conjunction	3193 Aug 31 02:50	8°♐41'28	9°02'39
minimum elong	3185 Aug 17 17:39	25°♏49'00	5°41'25	minimum elong	3193 Aug 31 02:32	8°♐41'26	9°02'39
retrograde	3185 Nov 28 11:28	27°♏44'44		retrograde	3193 Dec 12 00:21	10°♐46'17	
opposition	3186 Feb 15 16:19	26°♏34'43	6°13'06	opposition	3194 Feb 28 10:03	9°♐33'08	9°46'59
min. Earth dist.	3186 Feb 18 06:03	26°♏31'07	36.61772 AU	min. Earth dist.	3194 Mar 03 05:49	9°♐28'59	34.55524 AU
direct	3186 May 07 17:31	25°♏22'59		direct	3194 May 20 03:15	8°♐17'47	
max. Earth dist.	3186 Aug 16 14:27	27°♏14'56	38.47915 AU	max. Earth dist.	3194 Aug 30 00:26	10°♐19'08	36.39933 AU
conjunction	3186 Aug 19 13:43	27°♏20'11	6°06'25	conjunction	3194 Sep 02 03:52	10°♐25'07	9°27'38
minimum elong	3186 Aug 19 13:31	27°♏20'10	6°06'25	minimum elong	3194 Sep 02 03:34	10°♐25'06	9°27'38
retrograde	3186 Nov 30 07:27	29°♏16'58		retrograde	3194 Dec 14 00:12	12°♐31'10	
opposition	3187 Feb 17 10:26	28°♏06'36	6°39'39	opposition	3195 Mar 02 09:13	11°♐17'36	10°13'34
min. Earth dist.	3187 Feb 20 01:54	28°♏02'54	36.36213 AU	min. Earth dist.	3195 Mar 05 04:29	11°♐13'27	34.29995 AU
direct	3187 May 09 09:09	26°♏54'29		direct	3195 May 22 01:10	10°♐01'46	
max. Earth dist.	3187 Aug 18 11:19	28°♏47'35	38.22144 AU	max. Earth dist.	3195 Sep 01 00:59	12°♐04'22	36.14277 AU
conjunction	3187 Aug 21 10:24	28°♏52'52	6°31'31	conjunction	3195 Sep 04 05:27	12°♐10'29	9°52'27
minimum elong	3187 Aug 21 10:11	28°♏52'51	6°31'32	minimum elong	3195 Sep 04 05:07	12°♐10'27	9°52'27
	3187 Sep 30 08:54	0°♐		retrograde	3195 Dec 16 03:40	14°♐17'49	
retrograde	3187 Dec 02 03:07	0°♐50'44		opposition	3196 Mar 03 09:00	13°♐03'49	10°39'57
	3188 Feb 04 20:23	30°♐♏		min. Earth dist.	3196 Mar 06 04:22	12°♐59'39	34.04755 AU
opposition	3188 Feb 19 05:01	29°♏40'02	7°06'18	direct	3196 May 22 21:49	11°♐47'30	
min. Earth dist.	3188 Feb 21 20:36	29°♏36'17	36.10566 AU	max. Earth dist.	3196 Sep 02 04:13	13°♐51'32	35.88913 AU
direct	3188 May 10 03:14	28°♏27'29					
	3188 Aug 07 02:56	0°♐		conjunction	3196 Sep 05 07:54	13°♐57'39	10°17'03
max. Earth dist.	3188 Aug 19 06:32	0°♐21'37	37.96266 AU	minimum elong	3196 Sep 05 07:35	13°♐57'37	10°17'03
conjunction	3188 Aug 22 07:33	0°♐27'05	6°56'41	retrograde	3196 Dec 17 06:30	16°♐06'17	
minimum elong	3188 Aug 22 07:20	0°♐27'04	6°56'40	opposition	3197 Mar 05 09:45	14°♐51'53	11°06'06
retrograde	3188 Dec 03 02:44	2°♐26'04		min. Earth dist.	3197 Mar 08 05:12	14°♐47'40	33.79828 AU
				direct	3197 May 24 21:15	13°♐35'07	

max. Earth dist.	3197 Sep 04 07:10	15° 14 40'32	35.63886 AU	max. Earth dist.	3205 Sep 20 14:18	1° 25 25'12	33.73534 AU
conjunction	3197 Sep 07 10:48	15° 14 46'42	10°41'23	conjunction	3205 Sep 23 16:41	1° 25 31'46	13°41'08
minimum elong	3197 Sep 07 10:27	15° 14 46'41	10°41'23	minimum elong	3205 Sep 23 16:17	1° 25 31'44	13°41'08
retrograde	3197 Dec 19 12:58	17° 15 56'41		retrograde	3206 Jan 04 23:07	3° 25 52'47	
opposition	3198 Mar 07 11:03	16° 15 41'53	11°31'59	opposition	3206 Mar 23 04:16	2° 25 34'37	14°42'51
min. Earth dist.	3198 Mar 10 05:48	16° 15 37'42	33.55239 AU	min. Earth dist.	3206 Mar 25 23:06	2° 25 30'11	31.68545 AU
direct	3198 May 26 23:25	15° 15 24'40		direct	3206 Jun 11 07:26	1° 25 13'35	
max. Earth dist.	3198 Sep 06 10:57	17° 15 31'31	35.39155 AU	max. Earth dist.	3206 Sep 23 01:41	3° 25 32'15	33.51369 AU
conjunction	3198 Sep 09 14:47	17° 15 37'46	11°05'25	conjunction	3206 Sep 26 02:55	3° 25 38'47	14°00'51
minimum elong	3198 Sep 09 14:27	17° 15 37'44	11°05'25	minimum elong	3206 Sep 26 02:33	3° 25 38'45	14°00'50
retrograde	3198 Dec 21 18:34	19° 16 49'07		retrograde	3207 Jan 07 11:32	6° 26 01'09	
opposition	3199 Mar 09 13:12	18° 16 33'55	11°57'32	opposition	3207 Mar 25 13:03	4° 26 42'34	15°03'41
min. Earth dist.	3199 Mar 12 09:00	18° 16 29'38	33.30942 AU	min. Earth dist.	3207 Mar 28 06:13	4° 26 38'13	31.46961 AU
direct	3199 May 29 00:52	17° 16 16'15		direct	3207 Jun 13 17:29	3° 26 21'04	
max. Earth dist.	3199 Sep 08 16:23	19° 16 24'36	35.14705 AU	max. Earth dist.	3207 Sep 25 13:10	5° 26 41'13	33.29788 AU
conjunction	3199 Sep 11 19:34	19° 16 30'52	11°29'06	conjunction	3207 Sep 28 13:58	5° 26 47'46	14°19'41
minimum elong	3199 Sep 11 19:12	19° 16 30'50	11°29'07	minimum elong	3207 Sep 28 13:35	5° 26 47'44	14°19'41
retrograde	3199 Dec 23 23:53	21° 17 43'35		retrograde	3208 Jan 09 23:53	8° 27 11'31	
opposition	3200 Mar 10 16:13	20° 17 28'00	12°22'43	opposition	3208 Mar 26 23:00	6° 27 52'30	15°23'34
min. Earth dist.	3200 Mar 13 11:05	20° 17 23'45	33.06906 AU	min. Earth dist.	3208 Mar 29 16:11	6° 27 48'09	31.26008 AU
direct	3200 May 30 04:07	19° 17 09'53		direct	3208 Jun 15 02:03	5° 27 30'34	
max. Earth dist.	3200 Sep 09 20:49	21° 17 19'37	34.90485 AU	max. Earth dist.	3208 Sep 27 03:04	7° 27 52'22	33.08893 AU
conjunction	3200 Sep 13 00:59	21° 17 26'01	11°52'25	conjunction	3208 Sep 30 01:38	7° 27 58'47	14°37'34
minimum elong	3200 Sep 13 00:37	21° 17 25'59	11°52'24	minimum elong	3208 Sep 30 01:18	7° 27 58'45	14°37'34
retrograde	3200 Dec 25 06:07	23° 18 40'07		retrograde	3209 Jan 11 11:59	10° 28 23'54	
opposition	3201 Mar 12 20:11	22° 18 24'08	12°47'29	opposition	3209 Mar 29 09:44	9° 28 04'31	15°42'23
min. Earth dist.	3201 Mar 15 15:59	22° 18 19'48	32.83109 AU	min. Earth dist.	3209 Apr 01 00:46	9° 28 00'16	31.05748 AU
direct	3201 Jun 01 05:46	21° 18 05'34		direct	3209 Jun 17 12:56	7° 28 42'11	
max. Earth dist.	3201 Sep 12 04:22	23° 18 16'50	34.66501 AU	max. Earth dist.	3209 Sep 29 15:54	10° 28 05'26	32.88724 AU
conjunction	3201 Sep 15 07:24	23° 18 23'13	12°15'16	conjunction	3209 Oct 02 14:11	10° 28 11'53	14°54'25
minimum elong	3201 Sep 15 07:01	23° 18 23'11	12°15'16	minimum elong	3209 Oct 02 13:49	10° 28 11'51	14°54'25
retrograde	3201 Dec 27 12:07	25° 19 38'42		retrograde	3210 Jan 14 01:45	12° 29 38'22	
opposition	3202 Mar 15 00:52	24° 19 22'18	13°11'46	opposition	3210 Mar 31 21:13	11° 29 18'39	16°00'04
min. Earth dist.	3202 Mar 17 20:06	24° 19 17'57	32.59546 AU	min. Earth dist.	3210 Apr 03 11:48	11° 29 14'24	30.86224 AU
direct	3202 Jun 03 09:18	23° 19 03'15		direct	3210 Jun 19 21:48	9° 29 55'56	
max. Earth dist.	3202 Sep 14 10:28	25° 19 15'53	34.42767 AU	max. Earth dist.	3210 Oct 02 08:00	12° 29 20'52	32.69299 AU
conjunction	3202 Sep 17 14:32	25° 19 22'24	12°37'38	conjunction	3210 Oct 05 03:41	12° 29 27'08	15°10'09
minimum elong	3202 Sep 17 14:10	25° 19 22'22	12°37'38	minimum elong	3210 Oct 05 03:22	12° 29 27'07	15°10'09
retrograde	3202 Dec 29 20:06	27° 20 39'17		retrograde	3211 Jan 16 15:23	14° 30 54'59	
opposition	3203 Mar 17 06:25	26° 20 22'27	13°35'32	opposition	3211 Apr 03 09:44	13° 30 34'57	16°16'32
min. Earth dist.	3203 Mar 20 01:57	26° 20 18'04	32.36256 AU	min. Earth dist.	3211 Apr 05 22:52	13° 30 30'47	30.67407 AU
direct	3203 Jun 05 12:25	25° 20 02'54		direct	3211 Jun 22 08:46	12° 30 11'54	
max. Earth dist.	3203 Sep 16 19:32	27° 20 17'04	34.19312 AU	max. Earth dist.	3211 Oct 04 22:27	14° 30 38'17	32.50591 AU
conjunction	3203 Sep 19 22:36	27° 20 23'35	12°59'27	conjunction	3211 Oct 07 17:47	14° 30 44'34	15°24'42
minimum elong	3203 Sep 19 22:12	27° 20 23'33	12°59'28	minimum elong	3211 Oct 07 17:27	14° 30 44'32	15°24'43
retrograde	3204 Jan 01 03:01	29° 21 41'50		retrograde	3212 Jan 19 06:49	17° 31 13'46	
opposition	3204 Mar 18 12:54	28° 21 24'34	13°58'41	opposition	3212 Apr 04 23:05	15° 31 53'26	16°31'44
min. Earth dist.	3204 Mar 21 08:22	28° 21 20'09	32.13268 AU	min. Earth dist.	3212 Apr 07 11:10	15° 31 49'19	30.49291 AU
direct	3204 Jun 06 18:13	27° 21 04'31		direct	3212 Jun 23 19:36	14° 31 30'03	
max. Earth dist.	3204 Sep 18 04:02	29° 21 20'07	33.96215 AU	max. Earth dist.	3212 Oct 06 15:51	16° 31 58'01	32.32575 AU
conjunction	3204 Sep 21 07:15	29° 21 26'42	13°20'39	conjunction	3212 Oct 09 08:52	17° 32 04'08	15°38'02
minimum elong	3204 Sep 21 06:53	29° 21 26'40	13°20'39	minimum elong	3212 Oct 09 08:35	17° 32 04'07	15°38'02
retrograde	3204 Oct 07 07:01	0° 32		retrograde	3213 Jan 20 20:55	19° 32 34'37	
retrograde	3205 Jan 02 13:34	1° 32 46'20		opposition	3213 Apr 07 13:27	18° 32 14'00	16°45'34
opposition	3205 Mar 20 20:05	0° 32 28'37	14°21'09	min. Earth dist.	3213 Apr 10 00:42	18° 32 09'56	30.31837 AU
min. Earth dist.	3205 Mar 23 14:37	0° 32 24'14	31.90681 AU	direct	3213 Jun 26 08:53	16° 32 50'18	
direct	3205 Apr 08 08:25	30° 33		max. Earth dist.	3213 Oct 09 08:07	19° 32 19'39	32.15251 AU
direct	3205 Jun 09 00:30	29° 33 08'04		conjunction	3213 Oct 12 00:28	19° 32 25'45	15°50'02
	3205 Aug 07 16:16	0° 33					

minimum elong	3213 Oct 12 00:11	19° 2 25'44	15°50'03	minimum elong	3221 Nov 01 02:56	9° 1 16'06	16°30'56
retrograde	3214 Jan 23 14:39	21° 2 57'29		retrograde	3222 Feb 12 20:46	11° 1 55'06	
opposition	3214 Apr 10 04:31	20° 2 36'34	16°57'59	opposition	3222 Apr 30 07:00	10° 1 32'08	17°36'53
min. Earth dist.	3214 Apr 12 13:58	20° 2 32'36	30.15051 AU	min. Earth dist.	3222 May 02 01:38	10° 1 29'07	29.09482 AU
direct	3214 Jun 28 22:44	19° 2 12'33		direct	3222 Jul 19 00:38	9° 1 06'09	
max. Earth dist.	3214 Oct 12 02:34	21° 2 43'20	31.98598 AU	max. Earth dist.	3222 Nov 02 02:36	11° 1 45'42	30.96208 AU
conjunction	3214 Oct 14 17:04	21° 2 49'18	16°00'41	conjunction	3222 Nov 03 22:59	11° 1 50'08	16°28'08
minimum elong	3214 Oct 14 16:50	21° 2 49'17	16°00'41	minimum elong	3222 Nov 03 23:01	11° 1 50'09	16°28'07
retrograde	3215 Jan 26 06:36	24° 2 22'13		retrograde	3223 Feb 15 17:53	14° 1 29'42	
opposition	3215 Apr 12 20:30	23° 2 01'01	17°08'55	opposition	3223 May 03 03:42	13° 1 06'37	17°33'06
min. Earth dist.	3215 Apr 15 05:35	22° 2 57'03	29.98927 AU	min. Earth dist.	3223 May 04 19:21	13° 1 03'49	29.00825 AU
direct	3215 Jul 01 13:03	21° 2 36'41		direct	3223 Jul 21 20:08	11° 1 40'33	
max. Earth dist.	3215 Oct 14 21:12	24° 2 08'47	31.82669 AU	max. Earth dist.	3223 Nov 05 02:59	14° 1 20'59	30.88180 AU
conjunction	3215 Oct 17 10:10	24° 2 14'39	16°09'54	conjunction	3223 Nov 06 19:27	14° 1 25'02	16°23'26
minimum elong	3215 Oct 17 09:56	24° 2 14'38	16°09'54	minimum elong	3223 Nov 06 19:31	14° 1 25'03	16°23'26
retrograde	3216 Jan 29 01:32	26° 2 48'41		retrograde	3223 Nov 21 10:01	15° 1	
opposition	3216 Apr 14 13:13	25° 2 27'10	17°18'16	opposition	3224 Feb 18 12:42	17° 1 05'04	
min. Earth dist.	3216 Apr 16 19:56	25° 2 23'22	29.83516 AU	opposition	3224 May 05 01:02	15° 1 41'55	17°27'16
direct	3216 Jul 03 07:17	24° 2 02'32		min. Earth dist.	3224 May 06 14:41	15° 1 39'15	28.93256 AU
max. Earth dist.	3216 Oct 16 16:27	26° 2 35'54	31.67485 AU	direct	3224 May 30 20:04	15° 1 39'15	
conjunction	3216 Oct 19 03:48	26° 2 41'39	16°17'36	direct	3224 Jul 23 16:54	14° 1 15'49	
minimum elong	3216 Oct 19 03:37	26° 2 41'38	16°17'35	max. Earth dist.	3224 Sep 13 11:01	15° 1	
retrograde	3217 Jan 30 19:10	29° 2 16'42		max. Earth dist.	3224 Nov 07 01:27	16° 1 56'49	30.81270 AU
opposition	3217 Apr 17 06:44	27° 2 54'54	17°25'58	conjunction	3224 Nov 08 15:49	17° 1 00'41	16°16'49
min. Earth dist.	3217 Apr 19 12:55	27° 2 51'07	29.68863 AU	minimum elong	3224 Nov 08 15:55	17° 1 00'42	16°16'49
direct	3217 Jul 06 00:03	26° 2 29'58		retrograde	3225 Feb 20 10:23	19° 1 04'06	
max. Earth dist.	3217 Oct 19 13:07	29° 2 04'34	31.53127 AU	opposition	3225 May 07 22:32	18° 1 17'53	17°19'23
conjunction	3217 Oct 21 22:01	29° 2 10'07	16°23'43	min. Earth dist.	3225 May 09 08:48	18° 1 15'28	28.86755 AU
minimum elong	3217 Oct 21 21:51	29° 2 10'06	16°23'43	direct	3225 Jul 26 14:06	16° 1 51'46	
retrograde	3217 Nov 12 12:49	0° 1		max. Earth dist.	3225 Nov 10 01:48	19° 1 33'24	30.75426 AU
opposition	3218 Feb 02 14:21	1° 1 46'07		conjunction	3225 Nov 11 12:39	19° 1 36'55	16°08'20
min. Earth dist.	3218 Apr 20 00:38	0° 1 24'02	17°31'56	minimum elong	3225 Nov 11 12:47	19° 1 36'56	16°08'20
direct	3218 Apr 22 04:07	0° 1 20'26	29.55027 AU	retrograde	3226 Feb 23 05:54	22° 1 17'36	
max. Earth dist.	3218 May 04 12:43	30° 1 39'45		opposition	3226 May 10 20:21	20° 1 54'22	17°09'28
conjunction	3218 Jul 08 19:00	28° 1 58'50		min. Earth dist.	3226 May 12 05:10	20° 1 52'03	28.81278 AU
minimum elong	3218 Sep 08 20:58	0° 1		direct	3226 Jul 29 10:17	19° 1 28'16	
max. Earth dist.	3218 Oct 22 09:16	1° 1 34'30	31.39646 AU	max. Earth dist.	3226 Nov 13 01:03	22° 1 10'17	30.70643 AU
conjunction	3218 Oct 24 16:43	1° 1 39'56	16°28'11	conjunction	3226 Nov 14 09:29	22° 1 13'34	15°57'57
minimum elong	3218 Oct 24 16:36	1° 1 39'55	16°28'10	minimum elong	3226 Nov 14 09:39	22° 1 13'35	15°57'57
retrograde	3219 Feb 05 10:26	4° 1 16'48		retrograde	3227 Feb 26 03:10	24° 1 54'25	
opposition	3219 Apr 22 19:26	2° 1 54'26	17°36'04	opposition	3227 May 13 18:24	23° 1 31'10	16°57'32
min. Earth dist.	3219 Apr 24 21:41	2° 1 50'55	29.42096 AU	min. Earth dist.	3227 May 14 23:34	23° 1 29'06	28.76816 AU
direct	3219 Jul 11 13:11	1° 1 28'58		direct	3227 Aug 01 09:54	22° 1 05'05	
max. Earth dist.	3219 Oct 25 07:48	4° 1 05'48	31.27141 AU	max. Earth dist.	3227 Nov 16 00:54	24° 1 47'27	30.66886 AU
conjunction	3219 Oct 27 11:45	4° 1 10'56	16°30'54	conjunction	3227 Nov 17 06:16	24° 1 50'25	15°45'44
minimum elong	3219 Oct 27 11:40	4° 1 10'56	16°30'55	minimum elong	3227 Nov 17 06:29	24° 1 50'26	15°45'45
retrograde	3220 Feb 08 05:17	6° 1 48'35		retrograde	3228 Feb 28 23:03	27° 1 31'20	
opposition	3220 Apr 24 14:47	5° 1 25'59	17°38'20	opposition	3228 May 15 16:45	26° 1 08'04	16°43'36
min. Earth dist.	3220 Apr 26 14:10	5° 1 22'39	29.30141 AU	min. Earth dist.	3228 May 16 20:16	26° 1 06'07	28.73360 AU
direct	3220 Jul 13 09:41	4° 1 00'18		direct	3228 Aug 03 07:41	24° 1 42'02	
max. Earth dist.	3220 Oct 27 04:55	6° 1 38'02	31.15693 AU	max. Earth dist.	3228 Nov 18 00:36	27° 1 24'35	30.64182 AU
conjunction	3220 Oct 29 07:07	6° 1 43'01	16°31'51	conjunction	3228 Nov 19 03:00	27° 1 27'16	15°31'41
minimum elong	3220 Oct 29 07:04	6° 1 43'01	16°31'50	minimum elong	3228 Nov 19 03:14	27° 1 27'17	15°31'40
retrograde	3221 Feb 10 01:14	9° 1 21'23		retrograde	3229 Feb 09 16:57	0° 1 37'08	
opposition	3221 Apr 27 10:37	7° 1 58'34	17°38'37	opposition	3229 Mar 02 20:01	0° 1 37'08	
min. Earth dist.	3221 Apr 29 07:47	7° 1 55'23	29.19265 AU	min. Earth dist.	3229 Mar 24 09:54	30° 1 39'11	
direct	3221 Jul 16 04:14	6° 1 32'42		direct	3229 May 18 14:50	28° 1 44'51	16°27'43
max. Earth dist.	3221 Oct 30 04:43	9° 1 11'30	31.05376 AU	max. Earth dist.	3229 May 19 14:41	28° 1 43'11	28.70919 AU
conjunction	3221 Nov 01 02:57	9° 1 16'06	16°30'56	direct	3229 Aug 06 07:18	27° 1 18'53	
					3229 Nov 20 09:03	0° 1 37'08	

conjunction	3229 Nov 21 23:34	0°♂03'54	15°15'50	minimum elong	3237 Dec 12 06:17	20°♂30'04	12°10'08
minimum elong	3229 Nov 21 23:50	0°♂03'55	15°15'50	max. Earth dist.	3237 Dec 12 08:54	20°♂30'19	30.91332 AU
max. Earth dist.	3229 Nov 20 23:43	0°♂01'29	30.62518 AU	retrograde	3238 Mar 25 19:43	23°♂06'14	
retrograde	3230 Mar 05 16:31	2°♂44'35		opposition	3238 Jun 11 13:04	21°♂44'04	12°44'45
opposition	3230 May 21 13:03	1°♂21'20	16°09'54	min. Earth dist.	3238 Jun 11 08:23	21°♂44'24	29.00184 AU
min. Earth dist.	3230 May 22 10:55	1°♂19'48	28.69518 AU	direct	3238 Aug 30 13:33	20°♂19'56	
	3230 Jul 23 17:59	30°♂					
direct	3230 Aug 09 05:31	29°♂55'27		conjunction	3238 Dec 14 22:29	22°♂58'29	11°40'42
	3230 Aug 25 14:46	0°♂		minimum elong	3238 Dec 14 22:52	22°♂58'31	11°40'42
				max. Earth dist.	3238 Dec 15 05:04	22°♂59'08	31.00140 AU
conjunction	3230 Nov 24 19:51	2°♂40'06	14°58'13	retrograde	3239 Mar 28 10:28	25°♂33'50	
minimum elong	3230 Nov 24 20:08	2°♂40'08	14°58'13	opposition	3239 Jun 14 08:26	24°♂11'55	12°12'38
max. Earth dist.	3230 Nov 23 23:43	2°♂38'04	30.61941 AU	min. Earth dist.	3239 Jun 14 01:46	24°♂12'22	29.09115 AU
retrograde	3231 Mar 08 12:39	5°♂20'30		direct	3239 Sep 02 08:28	22°♂48'07	
opposition	3231 May 24 11:04	3°♂57'17	15°50'12				
min. Earth dist.	3231 May 25 05:26	3°♂55'59	28.69184 AU	conjunction	3239 Dec 17 14:31	25°♂25'33	11°10'14
direct	3231 Aug 12 06:25	2°♂31'30		minimum elong	3239 Dec 17 14:56	25°♂25'36	11°10'14
				max. Earth dist.	3239 Dec 17 23:43	25°♂26'28	31.09945 AU
conjunction	3231 Nov 27 15:44	5°♂15'41	14°38'53	retrograde	3240 Mar 30 02:12	27°♂59'58	
minimum elong	3231 Nov 27 16:03	5°♂15'43	14°38'53	opposition	3240 Jun 16 03:05	26°♂38'19	11°39'26
max. Earth dist.	3231 Nov 26 22:09	5°♂13'55	30.62485 AU	min. Earth dist.	3240 Jun 15 16:44	26°♂39'01	29.19005 AU
retrograde	3232 Mar 10 08:17	7°♂55'43		direct	3240 Sep 04 03:56	25°♂14'50	
opposition	3232 May 26 08:57	6°♂32'32	15°28'39				
min. Earth dist.	3232 May 27 00:26	6°♂31'27	28.70005 AU	conjunction	3240 Dec 19 05:53	27°♂51'07	10°38'50
direct	3232 Aug 14 03:53	5°♂06'52		minimum elong	3240 Dec 19 06:15	27°♂51'09	10°38'50
				max. Earth dist.	3240 Dec 19 17:47	27°♂52'17	31.20670 AU
conjunction	3232 Nov 29 11:11	7°♂50'29	14°17'52		3241 Feb 22 17:28	0°♂	
minimum elong	3232 Nov 29 11:31	7°♂50'31	14°17'52	retrograde	3241 Apr 01 16:45	0°♂24'34	
max. Earth dist.	3232 Nov 28 22:03	7°♂49'10	30.64227 AU		3241 May 11 04:20	30°♂	
retrograde	3233 Mar 13 03:27	10°♂30'03		opposition	3241 Jun 18 21:15	29°♂03'08	11°05'18
opposition	3233 May 29 06:33	9°♂06'58	15°05'19	min. Earth dist.	3241 Jun 18 08:49	29°♂03'59	29.29814 AU
min. Earth dist.	3233 May 29 18:43	9°♂06'07	28.72011 AU	direct	3241 Sep 06 22:17	27°♂40'00	
direct	3233 Aug 17 03:52	7°♂41'27			3241 Dec 15 08:38	0°♂	
conjunction	3233 Dec 02 06:14	10°♂24'25	13°55'14	conjunction	3241 Dec 21 20:43	0°♂15'04	10°06'36
minimum elong	3233 Dec 02 06:37	10°♂24'27	13°55'14	minimum elong	3241 Dec 21 21:06	0°♂15'06	10°06'36
max. Earth dist.	3233 Dec 01 19:32	10°♂23'21	30.67201 AU	max. Earth dist.	3241 Dec 22 11:39	0°♂16'31	31.32290 AU
retrograde	3234 Mar 15 23:23	13°♂03'27		retrograde	3242 Apr 04 06:44	2°♂47'27	
opposition	3234 Jun 01 03:41	11°♂40'28	14°40'16	opposition	3242 Jun 21 14:36	1°♂26'17	10°30'19
min. Earth dist.	3234 Jun 01 12:06	11°♂39'53	28.75262 AU	min. Earth dist.	3242 Jun 20 23:10	1°♂27'19	29.41490 AU
direct	3234 Aug 20 01:40	10°♂15'10		direct	3242 Sep 09 18:16	0°♂03'28	
conjunction	3234 Dec 05 01:01	12°♂57'24	13°31'03	conjunction	3242 Dec 24 10:45	2°♂37'17	9°33'37
minimum elong	3234 Dec 05 01:23	12°♂57'26	13°31'03	minimum elong	3242 Dec 24 11:06	2°♂37'19	9°33'37
max. Earth dist.	3234 Dec 04 18:50	12°♂56'47	30.71435 AU	max. Earth dist.	3242 Dec 25 03:43	2°♂38'55	31.44763 AU
retrograde	3235 Mar 18 16:00	15°♂35'49		retrograde	3243 Apr 06 20:55	5°♂08'35	
opposition	3235 Jun 04 00:45	14°♂13'00	14°13'34	opposition	3243 Jun 24 07:28	3°♂47'39	9°54'36
min. Earth dist.	3235 Jun 04 06:23	14°♂12'37	28.79743 AU	min. Earth dist.	3243 Jun 23 13:14	3°♂48'52	29.54053 AU
direct	3235 Aug 22 23:46	12°♂47'58		direct	3243 Sep 12 11:10	2°♂25'10	
conjunction	3235 Dec 07 19:00	15°♂29'23	13°05'24	conjunction	3243 Dec 27 00:00	4°♂57'40	9°00'00
minimum elong	3235 Dec 07 19:23	15°♂29'25	13°05'25	minimum elong	3243 Dec 27 00:21	4°♂57'42	9°00'00
max. Earth dist.	3235 Dec 07 15:18	15°♂29'01	30.76907 AU	max. Earth dist.	3243 Dec 27 20:37	4°♂59'38	31.58113 AU
retrograde	3236 Mar 20 10:41	18°♂07'08		retrograde	3244 Apr 08 08:54	7°♂27'52	
opposition	3236 Jun 05 21:19	16°♂44'31	13°45'21	opposition	3244 Jun 25 23:35	6°♂07'10	9°18'15
min. Earth dist.	3236 Jun 05 22:49	16°♂44'24	28.85436 AU	min. Earth dist.	3244 Jun 25 02:56	6°♂08'33	29.67498 AU
direct	3236 Aug 24 20:45	15°♂19'45		direct	3244 Sep 14 05:53	4°♂45'01	
conjunction	3236 Dec 09 12:46	18°♂00'17	12°38'24	conjunction	3244 Dec 28 12:25	7°♂16'12	8°25'49
minimum elong	3236 Dec 09 13:08	18°♂00'19	12°38'24	minimum elong	3244 Dec 28 12:44	7°♂16'13	8°25'49
max. Earth dist.	3236 Dec 09 13:22	18°♂00'21	30.83558 AU	max. Earth dist.	3244 Dec 29 10:48	7°♂18'19	31.72348 AU
retrograde	3237 Mar 23 03:15	20°♂37'18		retrograde	3245 Apr 10 22:25	9°♂45'14	
opposition	3237 Jun 08 17:25	19°♂14'54	13°15'42	opposition	3245 Jun 28 14:45	8°♂24'48	8°41'21
min. Earth dist.	3237 Jun 08 16:49	19°♂14'57	28.92271 AU	min. Earth dist.	3245 Jun 27 14:37	8°♂26'24	29.81880 AU
direct	3237 Aug 27 16:39	17°♂50'27		direct	3245 Sep 16 22:43	7°♂03'00	
conjunction	3237 Dec 12 05:53	20°♂30'01	12°10'07	conjunction	3245 Dec 31 00:15	9°♂32'51	7°51'09

minimum elong	3245 Dec 31 00:34	9° $\overline{3}$ 32'52	7°51'09	min. Earth dist.	3254 Jul 17 03:01	27° $\overline{3}$ 48'31	31.48667 AU
max. Earth dist.	3246 Jan 01 02:32	9° $\overline{3}$ 35'19	31.87510 AU	opposition	3254 Jul 19 00:37	27° $\overline{3}$ 45'39	3°00'22
retrograde	3246 Apr 13 08:29	12° $\overline{3}$ 00'44		direct	3254 Oct 07 14:31	26° $\overline{3}$ 27'41	
min. Earth dist.	3246 Jun 30 03:20	10° $\overline{3}$ 42'19	29.97205 AU				
opposition	3246 Jul 01 05:27	10° $\overline{3}$ 40'35	8°04'00	conjunction	3255 Jan 19 01:55	28° $\overline{3}$ 45'35	2°32'01
direct	3246 Sep 19 15:11	9° $\overline{3}$ 19'11		minimum elong	3255 Jan 19 02:01	28° $\overline{3}$ 45'35	2°32'01
				max. Earth dist.	3255 Jan 21 00:10	28° $\overline{3}$ 49'38	33.59262 AU
conjunction	3247 Jan 02 11:06	11° $\overline{3}$ 47'40	7°16'06		3255 Feb 25 08:58	0° \approx	
minimum elong	3247 Jan 02 11:23	11° $\overline{3}$ 47'42	7°16'07	retrograde	3255 May 02 07:37	1° \approx 03'10	
max. Earth dist.	3247 Jan 03 15:15	11° $\overline{3}$ 50'18	32.03609 AU		3255 Jul 12 02:00	30° \overline{R} 3	
retrograde	3247 Apr 15 19:02	14° $\overline{3}$ 14'25		min. Earth dist.	3255 Jul 19 10:42	29° $\overline{3}$ 49'01	31.70127 AU
opposition	3247 Jul 03 19:18	12° $\overline{3}$ 54'35	7°26'19	opposition	3255 Jul 21 09:00	29° $\overline{3}$ 46'08	2°23'02
min. Earth dist.	3247 Jul 02 13:10	12° $\overline{3}$ 56'34	30.13483 AU	direct	3255 Oct 10 00:20	28° $\overline{3}$ 28'33	
direct	3247 Sep 22 06:10	11° $\overline{3}$ 33'35			3255 Dec 30 07:29	0° \approx	
conjunction	3248 Jan 04 21:24	14° $\overline{3}$ 00'45	6°40'46	conjunction	3256 Jan 21 06:40	0° \approx 45'06	1°57'07
minimum elong	3248 Jan 04 21:41	14° $\overline{3}$ 00'46	6°40'46	minimum elong	3256 Jan 21 06:45	0° \approx 45'06	1°57'07
max. Earth dist.	3248 Jan 06 05:12	14° $\overline{3}$ 03'42	32.20621 AU	max. Earth dist.	3256 Jan 23 05:39	0° \approx 49'11	33.81026 AU
retrograde	3248 Apr 17 03:33	16° $\overline{3}$ 26'21		retrograde	3256 May 03 11:18	3° \approx 01'31	
min. Earth dist.	3248 Jul 04 00:37	15° $\overline{3}$ 08'57	30.30677 AU	min. Earth dist.	3256 Jul 20 15:16	1° \approx 47'49	31.92015 AU
opposition	3248 Jul 05 08:31	15° $\overline{3}$ 06'52	6°48'21	opposition	3256 Jul 22 16:20	1° \approx 44'46	1°46'03
direct	3248 Sep 23 19:42	13° $\overline{3}$ 46'18		direct	3256 Oct 11 09:49	0° \approx 27'33	
conjunction	3249 Jan 06 06:53	16° $\overline{3}$ 12'08	6°05'13	conjunction	3257 Jan 22 10:42	2° \approx 42'47	1°22'33
minimum elong	3249 Jan 06 07:07	16° $\overline{3}$ 12'09	6°05'13	minimum elong	3257 Jan 22 10:45	2° \approx 42'47	1°22'33
max. Earth dist.	3249 Jan 07 16:38	16° $\overline{3}$ 15'14	32.38503 AU	max. Earth dist.	3257 Jan 24 12:06	2° \approx 47'03	34.03193 AU
retrograde	3249 Apr 19 12:44	18° $\overline{3}$ 36'35		retrograde	3257 May 05 13:20	4° \approx 58'02	
min. Earth dist.	3249 Jul 06 09:29	17° $\overline{3}$ 19'46	30.48707 AU	min. Earth dist.	3257 Jul 22 21:12	3° \approx 44'40	32.14354 AU
opposition	3249 Jul 07 20:51	17° $\overline{3}$ 17'28	6°10'15	opposition	3257 Jul 24 23:10	3° \approx 41'35	1°09'28
direct	3249 Sep 26 08:47	15° $\overline{3}$ 57'21		direct	3257 Oct 13 18:10	2° \approx 24'43	
conjunction	3250 Jan 08 15:41	18° $\overline{3}$ 21'51	5°29'32	conjunction	3258 Jan 24 14:00	4° \approx 38'39	0°48'20
minimum elong	3250 Jan 08 15:54	18° $\overline{3}$ 21'52	5°29'32	minimum elong	3258 Jan 24 14:02	4° \approx 38'39	0°48'20
max. Earth dist.	3250 Jan 10 04:03	18° $\overline{3}$ 25'11	32.57148 AU	max. Earth dist.	3258 Jan 26 16:49	4° \approx 43'00	34.25812 AU
retrograde	3250 Apr 21 20:33	20° $\overline{3}$ 45'11		retrograde	3258 May 07 15:02	6° \approx 52'45	
min. Earth dist.	3250 Jul 08 19:33	19° $\overline{3}$ 28'49	30.67502 AU	min. Earth dist.	3258 Jul 25 00:38	5° \approx 39'49	32.37170 AU
opposition	3250 Jul 10 08:36	19° $\overline{3}$ 26'26	5°32'04	opposition	3258 Jul 27 05:06	5° \approx 36'35	0°33'18
direct	3250 Sep 28 20:05	18° $\overline{3}$ 06'46		direct	3258 Oct 16 01:51	4° \approx 20'06	
conjunction	3251 Jan 10 23:55	20° $\overline{3}$ 29'57	4°53'49	conjunction	3259 Jan 26 16:37	6° \approx 32'44	0°14'33
minimum elong	3251 Jan 11 00:06	20° $\overline{3}$ 29'58	4°53'49	minimum elong	3259 Jan 26 16:38	6° \approx 32'44	0°14'33
max. Earth dist.	3251 Jan 12 14:39	20° $\overline{3}$ 33'28	32.76503 AU	behind sun begin	3259 Jan 26 13:42	6° \approx 32'30	
retrograde	3251 Apr 24 04:21	22° $\overline{3}$ 52'08		behind sun end	3259 Jan 26 19:34	6° \approx 32'59	
min. Earth dist.	3251 Jul 11 04:08	21° $\overline{3}$ 36'17	30.86970 AU	max. Earth dist.	3259 Jan 28 21:08	6° \approx 37'12	34.48901 AU
opposition	3251 Jul 12 19:41	21° $\overline{3}$ 33'46	4°53'55	retrograde	3259 May 09 17:18	8° \approx 45'45	
direct	3251 Oct 01 07:40	20° $\overline{3}$ 14'32		desc. node	3259 Jul 04 21:21	8° \approx 04'36	
conjunction	3252 Jan 13 07:16	22° $\overline{3}$ 36'23	4°18'09	min. Earth dist.	3259 Jul 27 04:25	7° \approx 33'12	32.60505 AU
minimum elong	3252 Jan 13 07:26	22° $\overline{3}$ 36'24	4°18'09	opposition	3259 Jul 29 10:33	7° \approx 29'53	0°-2'-21
max. Earth dist.	3252 Jan 14 23:37	22° $\overline{3}$ 40'01	32.96458 AU	direct	3259 Oct 18 06:31	6° \approx 13'47	
retrograde	3252 Apr 25 12:44	24° $\overline{3}$ 57'27		conjunction	3260 Jan 28 18:39	8° \approx 25'10	0°-18'-51
min. Earth dist.	3252 Jul 12 12:23	23° $\overline{3}$ 42'05	31.07044 AU	minimum elong	3260 Jan 28 18:39	8° \approx 25'10	0°18'52
opposition	3252 Jul 14 06:07	23° $\overline{3}$ 39'26	4°15'52	max. Earth dist.	3260 Jan 31 01:30	8° \approx 29'48	34.72483 AU
direct	3252 Oct 02 16:31	22° $\overline{3}$ 20'38		retrograde	3260 May 10 18:42	10° \approx 37'06	
conjunction	3253 Jan 14 14:14	24° $\overline{3}$ 41'10	3°42'35	min. Earth dist.	3260 Jul 28 07:27	9° \approx 24'57	32.84314 AU
minimum elong	3253 Jan 14 14:23	24° $\overline{3}$ 41'11	3°42'35	opposition	3260 Jul 30 15:12	9° \approx 21'34	0°-37'-31
max. Earth dist.	3253 Jan 16 09:12	24° $\overline{3}$ 45'00	33.16951 AU	direct	3260 Oct 19 11:40	8° \approx 05'50	
retrograde	3253 Apr 27 19:04	27° $\overline{3}$ 01'05		conjunction	3261 Jan 29 20:02	10° \approx 16'02	0°-51'-43
min. Earth dist.	3253 Jul 14 20:37	25° $\overline{3}$ 46'08	31.27623 AU	minimum elong	3261 Jan 29 20:00	10° \approx 16'02	0°51'44
opposition	3253 Jul 16 15:39	25° $\overline{3}$ 43'24	3°38'00	max. Earth dist.	3261 Feb 01 03:39	10° \approx 20'41	34.96501 AU
direct	3253 Oct 05 04:30	24° $\overline{3}$ 25'02		retrograde	3261 May 12 21:41	12° \approx 26'54	
conjunction	3254 Jan 16 20:24	26° $\overline{3}$ 44'15	3°07'11	min. Earth dist.	3261 Jul 30 09:01	11° \approx 15'12	33.08570 AU
minimum elong	3254 Jan 16 20:32	26° $\overline{3}$ 44'16	3°07'11	opposition	3261 Aug 01 19:02	11° \approx 11'42	-1°-12'-7
max. Earth dist.	3254 Jan 18 15:58	26° $\overline{3}$ 48'07	33.37900 AU	direct	3261 Oct 21 13:58	9° \approx 56'23	
retrograde	3254 Apr 30 03:17	29° $\overline{3}$ 03'00		conjunction	3262 Jan 31 20:58	12° \approx 05'25	-1°-24'-6

minimum elong	3262 Jan 31 20:55	12°05'25	1°24'06	minimum elong	3270 Feb 14 08:24	25°51'38	5°22'36
max. Earth dist.	3262 Feb 03 07:04	12°10'14	35.20912 AU	max. Earth dist.	3270 Feb 17 01:03	25°56'41	37.22254 AU
retrograde	3262 May 14 21:59	14°15'15		retrograde	3270 May 28 10:34	27°53'50	
min. Earth dist.	3262 Aug 01 11:58	13°03'55	33.33193 AU	min. Earth dist.	3270 Aug 15 09:29	26°45'18	35.35895 AU
opposition	3262 Aug 03 22:30	13°00'24	-1°-46'-9	opposition	3270 Aug 18 04:27	26°41'26	-5°-55'-18
direct	3262 Oct 23 18:48	11°45'30		direct	3270 Nov 07 04:03	25°29'26	
conjunction	3263 Feb 02 21:05	13°53'23	-1°-55'-57	conjunction	3271 Feb 16 04:33	27°28'51	-5°-49'-39
minimum elong	3263 Feb 02 21:01	13°53'23	1°55'58	minimum elong	3271 Feb 16 04:23	27°28'50	5°49'40
max. Earth dist.	3263 Feb 05 07:32	13°58'12	35.45641 AU	max. Earth dist.	3271 Feb 18 22:49	27°33'59	37.47783 AU
	3263 Mar 10 06:27	15°		retrograde	3271 May 30 04:50	29°30'09	
retrograde	3263 May 16 23:18	16°02'13		min. Earth dist.	3271 Aug 17 07:46	28°21'52	35.61679 AU
	3263 Jul 28 11:02	15°		opposition	3271 Aug 20 02:46	28°18'02	-6°-23'-23
min. Earth dist.	3263 Aug 03 12:25	14°51'21	33.58119 AU	direct	3271 Nov 09 03:26	27°06'21	
opposition	3263 Aug 06 01:18	14°47'43	-2°-19'-34				
direct	3263 Oct 25 22:37	13°33'13		conjunction	3272 Feb 18 00:12	29°04'47	-6°-16'-3
	3264 Jan 15 04:00	15°		minimum elong	3272 Feb 18 00:01	29°04'46	6°16'03
				max. Earth dist.	3272 Feb 20 19:09	29°09'58	37.73480 AU
conjunction	3264 Feb 04 20:54	15°40'00	-2°-27'-14		3272 Mar 19 23:41	0°	
minimum elong	3264 Feb 04 20:48	15°39'59	2°27'15	retrograde	3272 May 30 21:46	1°05'13	
max. Earth dist.	3264 Feb 07 09:23	15°44'57	35.70608 AU		3272 Aug 16 04:31	30°	
retrograde	3264 May 17 22:36	17°47'51		min. Earth dist.	3272 Aug 18 03:37	29°57'19	35.87622 AU
min. Earth dist.	3264 Aug 04 14:30	16°37'19	33.83270 AU	opposition	3272 Aug 21 00:13	29°53'23	-6°-50'-46
opposition	3264 Aug 07 03:29	16°33'41	-2°-52'-21	direct	3272 Nov 10 03:33	28°42'03	
direct	3264 Oct 27 01:40	15°19'36			3273 Jan 27 21:08	0°	
conjunction	3265 Feb 05 20:10	17°25'17	-2°-57'-58	conjunction	3273 Feb 18 19:17	0°39'33	-6°-41'-48
minimum elong	3265 Feb 05 20:04	17°25'16	2°57'59	minimum elong	3273 Feb 18 19:06	0°39'32	6°41'49
max. Earth dist.	3265 Feb 08 09:09	17°30'14	35.95748 AU	max. Earth dist.	3273 Feb 21 14:56	0°44'44	37.99317 AU
retrograde	3265 May 19 20:16	19°32'10		retrograde	3273 Jun 01 16:59	2°39'09	
min. Earth dist.	3265 Aug 06 14:22	18°22'03	34.08555 AU	min. Earth dist.	3273 Aug 20 00:03	1°31'34	36.13715 AU
opposition	3265 Aug 09 05:01	18°18'21	-3°-24'-31	opposition	3273 Aug 22 21:26	1°27'37	-7°-17'-26
direct	3265 Oct 29 04:46	17°04'39		direct	3273 Nov 12 00:19	0°16'37	
conjunction	3266 Feb 07 18:51	19°09'15	-3°-28'-6	conjunction	3274 Feb 20 13:59	2°13'12	-7°-6'-54
minimum elong	3266 Feb 07 18:44	19°09'14	3°28'07	minimum elong	3274 Feb 20 13:47	2°13'11	7°06'54
max. Earth dist.	3266 Feb 10 08:35	19°14'14	36.20967 AU	max. Earth dist.	3274 Feb 23 11:04	2°18'28	38.25275 AU
retrograde	3266 May 21 18:43	21°15'12		retrograde	3274 Jun 03 10:49	4°12'01	
min. Earth dist.	3266 Aug 08 15:00	20°05'24	34.33925 AU	min. Earth dist.	3274 Aug 21 20:21	3°04'43	36.39892 AU
opposition	3266 Aug 11 06:09	20°01'41	-3°-56'-1	opposition	3274 Aug 24 18:07	3°00'46	-7°-43'-23
direct	3266 Oct 31 05:21	18°48'22		direct	3274 Nov 13 21:50	1°50'07	
conjunction	3267 Feb 09 17:12	20°51'54	-3°-57'-39	conjunction	3275 Feb 22 08:12	3°45'49	-7°-31'-20
minimum elong	3267 Feb 09 17:04	20°51'53	3°57'40	minimum elong	3275 Feb 22 08:00	3°45'48	7°31'22
max. Earth dist.	3267 Feb 12 08:06	20°56'56	36.46241 AU	max. Earth dist.	3275 Feb 25 05:03	3°51'01	38.51294 AU
retrograde	3267 May 23 16:15	22°56'54		retrograde	3275 Jun 05 07:48	5°43'50	
min. Earth dist.	3267 Aug 10 14:56	21°47'25	34.59327 AU	min. Earth dist.	3275 Aug 23 15:14	4°36'53	36.66123 AU
opposition	3267 Aug 13 06:38	21°43'42	-4°-26'-51	opposition	3275 Aug 26 14:22	4°32'53	-8°-8'-39
direct	3267 Nov 02 06:01	20°30'44		direct	3275 Nov 15 15:47	3°22'35	
conjunction	3268 Feb 11 14:47	22°33'11	-4°-26'-35	conjunction	3276 Feb 24 02:10	5°17'25	-7°-55'-8
minimum elong	3268 Feb 11 14:39	22°33'11	4°26'36	minimum elong	3276 Feb 24 01:58	5°17'25	7°55'09
max. Earth dist.	3268 Feb 14 05:35	22°38'11	36.71529 AU	max. Earth dist.	3276 Feb 27 00:39	5°22'43	38.77315 AU
retrograde	3268 May 24 15:25	24°37'15		retrograde	3276 Jun 06 02:53	7°14'40	
min. Earth dist.	3268 Aug 11 13:27	23°28'06	34.84771 AU	min. Earth dist.	3276 Aug 24 11:42	6°07'58	36.92316 AU
opposition	3268 Aug 14 06:33	23°24'19	-4°-57'-1	opposition	3276 Aug 27 10:13	6°04'01	-8°-33'-13
direct	3268 Nov 03 04:55	22°11'41		direct	3276 Nov 16 11:08	4°54'03	
conjunction	3269 Feb 12 12:02	24°13'06	-4°-54'-54	conjunction	3277 Feb 24 19:45	6°48'03	-8°-18'-18
minimum elong	3269 Feb 12 11:53	24°13'05	4°54'56	minimum elong	3277 Feb 24 19:32	6°48'02	8°18'20
max. Earth dist.	3269 Feb 15 04:39	24°18'12	36.96850 AU	max. Earth dist.	3277 Feb 27 17:39	6°53'16	39.03263 AU
retrograde	3269 May 26 12:26	26°16'13		retrograde	3277 Jun 07 21:22	8°44'32	
min. Earth dist.	3269 Aug 13 12:47	25°07'19	35.10272 AU	min. Earth dist.	3277 Aug 26 05:42	7°38'10	37.18403 AU
opposition	3269 Aug 16 05:44	25°03'34	-5°-26'-30	opposition	3277 Aug 29 05:25	7°34'11	-8°-57'-6
direct	3269 Nov 05 05:16	23°51'15		direct	3277 Nov 18 05:51	6°24'32	
conjunction	3270 Feb 14 08:34	25°51'38	-5°-22'-36	conjunction	3278 Feb 26 13:01	8°17'43	-8°-40'-51

minimum elong	3278 Feb 26 12:48	8° 17 '42	8°40'51	min. Earth dist.	3286 Sep 08 16:43	20° 12 '50'08	39.45572 AU
max. Earth dist.	3278 Mar 01 11:30	8° 17 '22'56	39.29060 AU	opposition	3286 Sep 11 17:04	20° 12 '21'15	-12°-2'-37
retrograde	3278 Jun 09 12:57	10° 17 '13'27		direct	3286 Dec 01 23:33	19° 12 '14'06	
min. Earth dist.	3278 Aug 28 01:30	9° 17 '07'18	37.44327 AU				
opposition	3278 Aug 31 00:33	9° 17 '03'21	-9°-20'-19	conjunction	3287 Mar 11 07:26	21° 17 '00'32	-11°-36'-20
direct	3278 Nov 20 02:37	7° 17 '54'01		minimum elong	3287 Mar 11 07:13	21° 17 '00'31	11°36'21
				max. Earth dist.	3287 Mar 14 07:01	21° 17 '05'33	41.53683 AU
conjunction	3279 Feb 28 05:55	9° 17 '46'23	-9°-2'-46	retrograde	3287 Jun 22 06:09	22° 17 '50'08	
minimum elong	3279 Feb 28 05:42	9° 17 '46'22	9°02'47	min. Earth dist.	3287 Sep 10 07:25	21° 17 '46'07	39.70235 AU
max. Earth dist.	3279 Mar 03 04:33	9° 17 '51'35	39.54669 AU	opposition	3287 Sep 13 08:30	21° 17 '42'13	-12°-20'-2
retrograde	3279 Jun 11 03:29	11° 17 '41'22		direct	3287 Dec 03 13:04	20° 17 '35'21	
min. Earth dist.	3279 Aug 29 19:44	10° 17 '35'29	37.70023 AU				
opposition	3279 Sep 01 19:06	10° 17 '31'32	-9°-42'-52	conjunction	3288 Mar 11 21:18	22° 17 '21'09	-11°-52'-51
direct	3279 Nov 21 23:38	9° 17 '22'29		minimum elong	3288 Mar 11 21:07	22° 17 '21'09	11°52'52
				max. Earth dist.	3288 Mar 14 21:56	22° 17 '26'13	41.78041 AU
conjunction	3280 Feb 29 22:27	11° 17 '14'02	-9°-24'-5	retrograde	3288 Jun 22 20:59	24° 17 '10'11	
minimum elong	3280 Feb 29 22:14	11° 17 '14'02	9°24'05	min. Earth dist.	3288 Sep 10 23:36	23° 17 '06'21	39.94694 AU
max. Earth dist.	3280 Mar 03 20:30	11° 17 '19'10	39.80037 AU	opposition	3288 Sep 13 23:29	23° 17 '02'31	-12°-36'-52
retrograde	3280 Jun 11 20:48	13° 17 '08'17		direct	3288 Dec 04 03:11	21° 17 '55'57	
min. Earth dist.	3280 Aug 30 13:34	12° 17 '02'38	37.95499 AU				
opposition	3280 Sep 02 13:08	11° 17 '58'41	-10°-4'-47	conjunction	3289 Mar 13 10:51	23° 17 '41'08	-12°-8'-49
direct	3280 Nov 22 17:01	10° 17 '49'55		minimum elong	3289 Mar 13 10:39	23° 17 '41'07	12°08'50
				max. Earth dist.	3289 Mar 16 10:24	23° 17 '46'06	42.02176 AU
conjunction	3281 Mar 02 14:41	12° 17 '40'39	-9°-44'-48	retrograde	3289 Jun 24 12:10	25° 17 '29'35	
minimum elong	3281 Mar 02 14:28	12° 17 '40'38	9°44'49	min. Earth dist.	3289 Sep 12 13:38	24° 17 '26'01	40.18890 AU
max. Earth dist.	3281 Mar 05 13:40	12° 17 '45'49	40.05190 AU	opposition	3289 Sep 15 14:11	24° 17 '22'11	-12°-53'-6
retrograde	3281 Jun 13 12:12	14° 17 '34'10		direct	3289 Dec 05 16:23	23° 17 '15'53	
min. Earth dist.	3281 Sep 01 07:53	13° 17 '28'41	38.20763 AU				
opposition	3281 Sep 04 06:47	13° 17 '24'48	-10°-26'-3	conjunction	3290 Mar 15 00:02	25° 17 '00'29	-12°-24'-15
direct	3281 Nov 24 11:41	12° 17 '16'17		minimum elong	3290 Mar 14 23:51	25° 17 '00'28	12°24'16
				max. Earth dist.	3290 Mar 17 23:45	25° 17 '05'25	42.26006 AU
conjunction	3282 Mar 04 06:12	14° 17 '06'14	-10°-4'-54	retrograde	3290 Jun 26 01:15	26° 17 '48'22	
minimum elong	3282 Mar 04 06:00	14° 17 '06'13	10°04'55	min. Earth dist.	3290 Sep 14 05:30	25° 17 '44'57	40.42763 AU
max. Earth dist.	3282 Mar 07 04:22	14° 17 '11'18	40.30163 AU	opposition	3290 Sep 17 04:49	25° 17 '41'12	-13°-8'-46
retrograde	3282 Jun 15 05:48	15° 17 '59'02		direct	3290 Dec 07 06:48	24° 17 '35'09	
min. Earth dist.	3282 Sep 02 23:56	14° 17 '53'48	38.45889 AU				
opposition	3282 Sep 06 00:01	14° 17 '49'52	-10°-46'-39	conjunction	3291 Mar 16 13:15	26° 17 '19'08	-12°-39'-9
direct	3282 Nov 26 03:08	13° 17 '41'36		minimum elong	3291 Mar 16 13:03	26° 17 '19'07	12°39'09
				max. Earth dist.	3291 Mar 19 12:40	26° 17 '24'03	42.49495 AU
conjunction	3283 Mar 05 21:35	15° 17 '30'48	-10°-24'-24	retrograde	3291 Jun 27 11:11	28° 17 '06'28	
minimum elong	3283 Mar 05 21:21	15° 17 '30'47	10°24'25	min. Earth dist.	3291 Sep 15 19:45	27° 17 '03'16	40.66252 AU
max. Earth dist.	3283 Mar 08 21:00	15° 17 '35'56	40.55018 AU	opposition	3291 Sep 18 18:55	26° 17 '59'31	-13°-23'-55
retrograde	3283 Jun 16 21:41	17° 17 '22'55		direct	3291 Dec 09 00:02	25° 17 '53'42	
min. Earth dist.	3283 Sep 04 17:34	16° 17 '17'51	38.70925 AU				
opposition	3283 Sep 07 16:55	16° 17 '13'59	-11°-6'-37	conjunction	3292 Mar 17 02:01	27° 17 '37'05	-12°-53'-32
direct	3283 Nov 27 19:35	15° 17 '05'59		minimum elong	3292 Mar 17 01:50	27° 17 '37'04	12°53'34
				max. Earth dist.	3292 Mar 20 00:08	27° 17 '41'52	42.72590 AU
conjunction	3284 Mar 06 12:33	16° 17 '54'27	-10°-43'-17	retrograde	3292 Jun 28 00:09	29° 17 '23'50	
minimum elong	3284 Mar 06 12:21	16° 17 '54'26	10°43'18	min. Earth dist.	3292 Sep 16 10:03	28° 17 '20'48	40.89354 AU
max. Earth dist.	3284 Mar 09 11:51	16° 17 '59'32	40.79807 AU	opposition	3292 Sep 19 08:49	28° 17 '17'05	-13°-38'-31
retrograde	3284 Jun 17 10:51	18° 17 '45'53		direct	3292 Dec 09 14:35	27° 17 '11'29	
min. Earth dist.	3284 Sep 05 08:45	17° 17 '41'07	38.95885 AU				
opposition	3284 Sep 08 09:15	17° 17 '37'11	-11°-25'-55	conjunction	3293 Mar 18 14:36	28° 17 '54'15	-13°-7'-26
direct	3284 Nov 28 13:22	16° 17 '29'28		minimum elong	3293 Mar 18 14:25	28° 17 '54'14	13°07'27
				max. Earth dist.	3293 Mar 21 13:14	28° 17 '59'03	42.95304 AU
conjunction	3285 Mar 08 03:08	18° 17 '17'14	-11°-1'-34	retrograde	3293 May 01 03:12	0° 17 '00'00	
minimum elong	3285 Mar 08 02:55	18° 17 '17'13	11°01'34		3293 Jun 29 12:24	0° 17 '40'26	
max. Earth dist.	3285 Mar 11 02:34	18° 17 '22'18	41.04516 AU		3293 Aug 30 11:47	30° 17 '00'00	
retrograde	3285 Jun 19 00:25	20° 17 '08'02		min. Earth dist.	3293 Sep 18 00:44	29° 17 '37'29	41.12077 AU
min. Earth dist.	3285 Sep 07 00:59	19° 17 '03'29	39.20780 AU	opposition	3293 Sep 20 22:18	29° 17 '33'51	-13°-52'-35
opposition	3285 Sep 10 01:19	18° 17 '59'35	-11°-44'-35	direct	3293 Dec 11 04:56	28° 17 '28'27	
direct	3285 Nov 30 06:36	17° 17 '52'09			3294 Mar 13 13:38	0° 17 '00'00	
conjunction	3286 Mar 09 17:34	19° 17 '39'14	-11°-19'-14	conjunction	3294 Mar 20 02:45	0° 17 '10'36	-13°-20'-49
minimum elong	3286 Mar 09 17:22	19° 17 '39'13	11°19'15	minimum elong	3294 Mar 20 02:34	0° 17 '10'35	13°20'51
max. Earth dist.	3286 Mar 12 17:52	19° 17 '44'21	41.29159 AU	max. Earth dist.	3294 Mar 23 00:09	0° 17 '15'17	43.17687 AU
retrograde	3286 Jun 20 13:53	21° 17 '29'26		retrograde	3294 Jul 01 02:17	1° 17 '56'13	

min. Earth dist.	3294 Sep 19 13:12	0°♊53'28	41.34507 AU	opposition	3302 Oct 03 10:45	10°♊33'28	-15°-35'-47
opposition	3294 Sep 22 11:29	0°♊49'48	-14°-6'-8	direct	3302 Dec 23 16:11	9°♊29'57	
	3294 Nov 06 15:10	30°♊					
direct	3294 Dec 12 16:28	29°♊44'35		conjunction	3303 Apr 01 05:32	11°♊07'31	-14°-59'-6
	3295 Jan 16 22:51	0°♊		minimum elong	3303 Apr 01 05:25	11°♊07'31	14°59'07
				max. Earth dist.	3303 Apr 04 01:04	11°♊11'54	45.08731 AU
conjunction	3295 Mar 21 14:34	1°♊26'09	-13°-33'-42	retrograde	3303 Jul 13 01:37	12°♊48'49	
minimum elong	3295 Mar 21 14:24	1°♊26'08	13°33'43	min. Earth dist.	3303 Oct 02 03:46	11°♊47'28	43.25786 AU
max. Earth dist.	3295 Mar 24 12:30	1°♊30'50	43.39797 AU	opposition	3303 Oct 04 21:36	11°♊44'08	-15°-44'-51
retrograde	3295 Jul 02 14:16	3°♊11'12		direct	3303 Dec 25 05:29	10°♊40'48	
min. Earth dist.	3295 Sep 21 03:21	2°♊08'32	41.56693 AU				
opposition	3295 Sep 24 00:27	2°♊04'57	-14°-19'-8	conjunction	3304 Apr 01 15:36	12°♊17'55	-15°-7'-46
direct	3295 Dec 14 04:59	0°♊59'56		minimum elong	3304 Apr 01 15:29	12°♊17'55	15°07'46
				max. Earth dist.	3304 Apr 04 09:15	12°♊22'09	45.28345 AU
conjunction	3296 Mar 22 02:17	2°♊40'55	-13°-46'-5	retrograde	3304 Jul 13 13:02	13°♊58'48	
minimum elong	3296 Mar 22 02:07	2°♊40'54	13°46'06	min. Earth dist.	3304 Oct 02 14:35	12°♊57'36	43.45315 AU
max. Earth dist.	3296 Mar 24 23:54	2°♊45'34	43.61701 AU	opposition	3304 Oct 05 08:07	12°♊54'17	-15°-53'-30
retrograde	3296 Jul 03 00:00	4°♊25'26		direct	3304 Dec 25 15:28	11°♊51'08	
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conjunction	3297 Mar 23 13:35	3°♊54'58	-13°-57'-57	retrograde	3305 Jul 15 00:00	15°♊08'15	
minimum elong	3297 Mar 23 13:27	3°♊54'57	13°57'57	min. Earth dist.	3305 Oct 04 02:43	14°♊07'06	43.64404 AU
max. Earth dist.	3297 Mar 26 10:41	3°♊59'34	43.83409 AU	opposition	3305 Oct 06 18:34	14°♊03'53	-16°-1'-44
retrograde	3297 Jul 04 11:01	5°♊38'58		direct	3305 Dec 27 01:22	13°♊00'54	
min. Earth dist.	3297 Sep 23 03:52	4°♊36'39	42.00473 AU				
opposition	3297 Sep 26 01:06	4°♊33'05	-14°-43'-33	conjunction	3306 Apr 04 10:58	14°♊37'07	-15°-23'-53
direct	3297 Dec 16 07:03	3°♊28'27		minimum elong	3306 Apr 04 10:52	14°♊37'07	15°23'53
				max. Earth dist.	3306 Apr 07 03:35	14°♊41'15	45.66288 AU
conjunction	3298 Mar 25 00:42	5°♊08'22	-14°-9'-19	retrograde	3306 Jul 16 11:19	16°♊17'08	
minimum elong	3298 Mar 25 00:32	5°♊08'21	14°09'20	min. Earth dist.	3306 Oct 05 12:26	15°♊16'08	43.83122 AU
max. Earth dist.	3298 Mar 27 22:36	5°♊13'00	44.04945 AU	opposition	3306 Oct 08 04:40	15°♊12'55	-16°-9'-32
retrograde	3298 Jul 05 20:19	6°♊51'53		direct	3306 Dec 28 09:01	14°♊10'04	
min. Earth dist.	3298 Sep 24 16:24	5°♊49'43	42.22072 AU				
opposition	3298 Sep 27 13:07	5°♊46'11	-14°-54'-59	conjunction	3307 Apr 05 20:19	15°♊45'52	-15°-31'-20
direct	3298 Dec 17 21:18	4°♊41'46		minimum elong	3307 Apr 05 20:14	15°♊45'52	15°31'21
				max. Earth dist.	3307 Apr 08 12:35	15°♊49'57	45.84717 AU
conjunction	3299 Mar 26 11:33	6°♊21'11	-14°-20'-11	retrograde	3307 Jul 17 19:51	17°♊25'28	
minimum elong	3299 Mar 26 11:26	6°♊21'10	14°20'12	min. Earth dist.	3307 Oct 06 23:42	16°♊24'32	44.01535 AU
max. Earth dist.	3299 Mar 29 08:12	6°♊25'42	44.26283 AU	opposition	3307 Oct 09 14:33	16°♊21'23	-16°-16'-55
retrograde	3299 Jul 07 09:47	8°♊04'13		direct	3307 Dec 29 18:49	15°♊18'42	
min. Earth dist.	3299 Sep 26 03:35	7°♊02'17	42.43464 AU				
opposition	3299 Sep 29 00:48	6°♊58'44	-15°-5'-54	conjunction	3308 Apr 06 05:35	16°♊54'04	-15°-38'-22
direct	3299 Dec 19 07:00	5°♊54'32		minimum elong	3308 Apr 06 05:30	16°♊54'04	15°38'22
				max. Earth dist.	3308 Apr 08 21:58	16°♊58'09	46.02877 AU
conjunction	3300 Mar 27 22:19	7°♊33'28	-14°-30'-35	retrograde	3308 Jul 18 01:01	18°♊33'15	
minimum elong	3300 Mar 27 22:11	7°♊33'27	14°30'37	min. Earth dist.	3308 Oct 07 09:21	17°♊32'28	44.19674 AU
max. Earth dist.	3300 Mar 30 19:33	7°♊38'00	44.47384 AU	opposition	3308 Oct 10 00:07	17°♊29'20	-16°-23'-52
retrograde	3300 Jul 08 22:03	9°♊16'04		direct	3308 Dec 30 07:50	16°♊26'47	
min. Earth dist.	3300 Sep 27 16:43	8°♊14'14	42.64585 AU				
opposition	3300 Sep 30 12:22	8°♊10'47	-15°-16'-19	conjunction	3309 Apr 07 14:24	18°♊01'46	-15°-44'-59
direct	3300 Dec 20 17:22	7°♊06'49		minimum elong	3309 Apr 07 14:19	18°♊01'45	15°45'00
				max. Earth dist.	3309 Apr 10 05:26	18°♊05'45	46.20784 AU
conjunction	3301 Mar 29 08:51	8°♊45'16	-14°-40'-32	retrograde	3309 Jul 19 10:08	19°♊40'33	
minimum elong	3301 Mar 29 08:45	8°♊45'16	14°40'33	min. Earth dist.	3309 Oct 08 18:53	18°♊39'55	44.37581 AU
max. Earth dist.	3301 Apr 01 05:15	8°♊49'44	44.68202 AU	opposition	3309 Oct 11 09:34	18°♊36'47	-16°-30'-22
retrograde	3301 Jul 10 07:41	10°♊27'25		direct	3309 Dec 31 18:10	17°♊34'25	
min. Earth dist.	3301 Sep 29 03:31	9°♊25'49	42.85382 AU				
opposition	3301 Oct 01 23:32	9°♊22'21	-15°-26'-17	conjunction	3310 Apr 08 23:16	19°♊08'59	-15°-51'-11
direct	3301 Dec 22 04:29	8°♊18'36		minimum elong	3310 Apr 08 23:12	19°♊08'59	15°51'11
				max. Earth dist.	3310 Apr 11 14:59	19°♊13'00	46.38468 AU
conjunction	3302 Mar 30 19:13	9°♊56'37	-14°-50'-2	retrograde	3310 Jul 20 19:29	20°♊47'25	
minimum elong	3302 Mar 30 19:04	9°♊56'37	14°50'03	min. Earth dist.	3310 Oct 10 05:24	19°♊46'52	44.55246 AU
max. Earth dist.	3302 Apr 02 14:47	10°♊01'01	44.88664 AU	opposition	3310 Oct 12 18:52	19°♊43'49	-16°-36'-28
retrograde	3302 Jul 11 17:20	11°♊38'21		direct	3311 Jan 02 04:14	18°♊41'37	
min. Earth dist.	3302 Sep 30 15:59	10°♊36'52	43.05808 AU				






















































































































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minimum elong	3311 Apr 10 07:46	20° Υ 15'48	15°57'00	retrograde	3319 Jul 30 20:01	0° δ 32'17	
max. Earth dist.	3311 Apr 12 22:24	20° Υ 19'44	46.55920 AU		3319 Sep 26 01:48	30° κ Υ	
retrograde	3311 Jul 22 06:04	21° Υ 53'52		min. Earth dist.	3319 Oct 20 16:17	29° Υ 32'36	45.97352 AU
min. Earth dist.	3311 Oct 11 13:55	20° Υ 53'30	44.72656 AU	opposition	3319 Oct 22 22:22	29° Υ 29'58	-17°-14'-27
opposition	3311 Oct 14 03:53	20° Υ 50'26	-16°-42'-8	direct	3320 Jan 12 06:45	28° Υ 29'03	
direct	3312 Jan 03 10:55	19° Υ 48'25					
conjunction	3312 Apr 10 16:20	21° Υ 22'15	-16°-2'-23	conjunction	3320 Apr 19 08:06	0° δ 00'12	-16°-33'-11
minimum elong	3312 Apr 10 16:18	21° Υ 22'15	16°02'24	minimum elong	3320 Apr 19 08:07	0° δ 00'12	16°33'12
max. Earth dist.	3312 Apr 13 06:35	21° Υ 26'08	46.73090 AU		3320 Apr 19 04:51	0° δ	
retrograde	3312 Jul 22 15:41	22° Υ 59'57		max. Earth dist.	3320 Apr 21 15:52	0° δ 03'35	47.95549 AU
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opposition	3312 Oct 14 12:43	21° Υ 56'41	-16°-47'-25	min. Earth dist.	3320 Oct 21 00:53	0° δ 35'35	46.11047 AU
direct	3313 Jan 03 17:55	20° Υ 54'51		opposition	3320 Oct 23 05:45	0° δ 33'01	-17°-16'-57
conjunction	3313 Apr 12 00:48	22° Υ 28'20	-16°-7'-25		3320 Nov 22 02:54	30° κ Υ	
minimum elong	3313 Apr 12 00:45	22° Υ 28'20	16°07'26	direct	3321 Jan 12 16:31	29° Υ 32'14	
max. Earth dist.	3313 Apr 14 14:44	22° Υ 32'11	46.89950 AU		3321 Mar 03 16:30	0° δ	
retrograde	3313 Jul 23 21:52	24° Υ 05'42		conjunction	3321 Apr 20 15:20	1° δ 03'04	-16°-35'-32
min. Earth dist.	3313 Oct 13 09:19	23° Υ 05'34	45.06518 AU	minimum elong	3321 Apr 20 15:20	1° δ 03'04	16°35'32
opposition	3313 Oct 15 21:22	23° Υ 02'36	-16°-52'-18	max. Earth dist.	3321 Apr 22 21:35	1° δ 06'21	48.09062 AU
direct	3314 Jan 05 03:15	22° Υ 00'56		retrograde	3321 Aug 01 10:51	2° δ 37'49	
conjunction	3314 Apr 13 08:53	23° Υ 34'05	-16°-12'-5	min. Earth dist.	3321 Oct 22 07:55	1° δ 38'18	46.24458 AU
minimum elong	3314 Apr 13 08:52	23° Υ 34'05	16°12'06	opposition	3321 Oct 24 13:07	1° δ 35'43	-17°-19'-6
max. Earth dist.	3314 Apr 15 21:15	23° Υ 37'50	47.06422 AU	direct	3322 Jan 13 22:48	0° δ 35'03	
retrograde	3314 Jul 25 05:59	25° Υ 11'07		conjunction	3322 Apr 21 22:20	2° δ 05'37	-16°-37'-33
min. Earth dist.	3314 Oct 14 18:52	24° Υ 11'06	45.22861 AU	minimum elong	3322 Apr 21 22:21	2° δ 05'37	16°37'34
opposition	3314 Oct 17 06:02	24° Υ 08'11	-16°-56'-50	max. Earth dist.	3322 Apr 24 04:30	2° δ 08'53	48.22288 AU
direct	3315 Jan 06 12:34	23° Υ 06'41		retrograde	3322 Aug 02 19:41	3° δ 40'05	
conjunction	3315 Apr 14 17:16	24° Υ 39'29	-16°-16'-25	min. Earth dist.	3322 Oct 23 16:53	2° δ 40'37	46.37582 AU
minimum elong	3315 Apr 14 17:13	24° Υ 39'29	16°16'26	opposition	3322 Oct 25 20:28	2° δ 38'07	-17°-20'-54
max. Earth dist.	3315 Apr 17 05:37	24° Υ 43'13	47.22449 AU	direct	3323 Jan 15 04:16	1° δ 37'36	
retrograde	3315 Jul 26 13:00	26° Υ 16'12		conjunction	3323 Apr 23 05:28	3° δ 07'54	-16°-39'-14
min. Earth dist.	3315 Oct 16 04:57	25° Υ 16'14	45.38715 AU	minimum elong	3323 Apr 23 05:30	3° δ 07'54	16°39'14
opposition	3315 Oct 18 14:23	25° Υ 13'25	-17°-1'-1	max. Earth dist.	3323 Apr 25 11:06	3° δ 11'07	48.35246 AU
direct	3316 Jan 07 23:30	24° Υ 12'03		retrograde	3323 Aug 04 02:07	4° δ 42'05	
conjunction	3316 Apr 15 01:24	25° Υ 44'31	-16°-20'-25	min. Earth dist.	3323 Oct 24 23:44	3° δ 42'46	46.50409 AU
minimum elong	3316 Apr 15 01:24	25° Υ 44'31	16°20'26	opposition	3323 Oct 27 03:24	3° δ 40'17	-17°-22'-21
max. Earth dist.	3316 Apr 17 11:42	25° Υ 48'06	47.37986 AU	direct	3324 Jan 16 09:44	2° δ 39'53	
retrograde	3316 Jul 26 23:30	27° Υ 20'53		conjunction	3324 Apr 23 12:21	4° δ 09'57	-16°-40'-35
min. Earth dist.	3316 Oct 16 13:21	26° Υ 21'02	45.54061 AU	minimum elong	3324 Apr 23 12:22	4° δ 09'57	16°40'37
opposition	3316 Oct 18 22:37	26° Υ 18'14	-17°-4'-53	max. Earth dist.	3324 Apr 25 16:34	4° δ 13'05	48.47891 AU
direct	3317 Jan 08 06:09	25° Υ 16'59		retrograde	3324 Aug 04 08:52	5° δ 43'53	
conjunction	3317 Apr 16 09:16	26° Υ 49'07	-16°-24'-6	min. Earth dist.	3324 Oct 25 07:57	4° δ 44'39	46.62915 AU
minimum elong	3317 Apr 16 09:14	26° Υ 49'07	16°24'07	opposition	3324 Oct 27 10:26	4° δ 42'14	-17°-23'-28
max. Earth dist.	3317 Apr 18 18:54	26° Υ 52'39	47.53009 AU	direct	3325 Jan 16 17:03	3° δ 41'59	
retrograde	3317 Jul 28 08:26	28° Υ 25'08		conjunction	3325 Apr 24 19:11	5° δ 11'48	-16°-41'-37
min. Earth dist.	3317 Oct 17 23:34	27° Υ 25'18	45.68909 AU	minimum elong	3325 Apr 24 19:14	5° δ 11'48	16°41'38
opposition	3317 Oct 20 06:48	27° Υ 22'36	-17°-8'-24	max. Earth dist.	3325 Apr 26 23:38	5° δ 14'56	48.60192 AU
direct	3318 Jan 09 12:59	26° Υ 21'29		retrograde	3325 Aug 05 12:50	6° δ 45'31	
conjunction	3318 Apr 17 17:06	27° Υ 53'16	-16°-27'-27	min. Earth dist.	3325 Oct 26 15:56	5° δ 46'22	46.75032 AU
minimum elong	3318 Apr 17 17:06	27° Υ 53'16	16°27'29	opposition	3325 Oct 28 17:17	5° δ 44'00	-17°-24'-17
max. Earth dist.	3318 Apr 20 02:07	27° Υ 56'45	47.67579 AU	direct	3326 Jan 18 03:16	4° δ 43'53	
retrograde	3318 Jul 29 13:42	29° Υ 28'56		conjunction	3326 Apr 26 01:57	6° δ 13'29	-16°-42'-21
min. Earth dist.	3318 Oct 19 07:35	28° Υ 29'11	45.83316 AU	minimum elong	3326 Apr 26 01:58	6° δ 13'29	16°42'23
opposition	3318 Oct 21 14:36	28° Υ 26'30	-17°-11'-36	max. Earth dist.	3326 Apr 28 04:23	6° δ 16'30	48.72095 AU
direct	3319 Jan 10 22:03	27° Υ 25'29		retrograde	3326 Aug 06 21:57	7° δ 46'59	
conjunction	3319 Apr 19 00:34	28° Υ 56'57	-16°-30'-29	min. Earth dist.	3326 Oct 27 23:02	6° δ 47'56	46.86723 AU
minimum elong	3319 Apr 19 00:33	28° Υ 56'57	16°30'30	opposition	3326 Oct 29 23:59	6° δ 45'35	-17°-24'-48
max. Earth dist.	3319 Apr 21 07:57	29° Υ 00'19	47.81737 AU	direct	3327 Jan 19 09:23	5° δ 45'37	
				conjunction	3327 Apr 27 08:45	7° δ 14'59	-16°-42'-49

minimum elong	3327 Apr 27 08:48	7°♄14'59	16°42'50	minimum elong	3335 May 05 10:53	15°♄15'42	16°36'40
max. Earth dist.	3327 Apr 29 10:37	7°♄17'57	48.83524 AU	max. Earth dist.	3335 May 07 05:27	15°♄18'11	49.58710 AU
retrograde	3327 Aug 08 07:25	8°♄48'15		retrograde	3335 Aug 16 02:44	16°♄47'02	
min. Earth dist.	3327 Oct 29 08:03	7°♄49'13	46.97906 AU	min. Earth dist.	3335 Nov 06 15:15	15°♄48'17	47.71424 AU
opposition	3327 Oct 31 06:44	7°♄46'59	-17°-25'-2	opposition	3335 Nov 08 06:56	15°♄46'24	-17°-16'-45
direct	3328 Jan 20 14:42	6°♄47'07			3335 Dec 25 00:48	15°♄	
				direct	3336 Jan 28 17:50	14°♄47'07	
conjunction	3328 Apr 27 15:33	8°♄16'15	-16°-43'00		3336 Mar 02 22:57	15°♄	
minimum elong	3328 Apr 27 15:35	8°♄16'15	16°43'01				
max. Earth dist.	3328 Apr 29 16:07	8°♄19'08	48.94440 AU	conjunction	3336 May 05 16:34	16°♄14'29	-16°-34'-34
retrograde	3328 Aug 08 13:05	9°♄49'15		minimum elong	3336 May 05 16:40	16°♄14'29	16°34'35
min. Earth dist.	3328 Oct 29 14:45	8°♄50'19	47.08548 AU	max. Earth dist.	3336 May 07 09:24	16°♄16'52	49.66628 AU
opposition	3328 Oct 31 13:04	8°♄48'06	-17°-24'-59	retrograde	3336 Aug 16 08:42	17°♄45'39	
direct	3329 Jan 20 20:18	7°♄48'19		min. Earth dist.	3336 Nov 06 20:58	16°♄46'59	47.79147 AU
				opposition	3336 Nov 08 12:23	16°♄45'07	-17°-14'-24
conjunction	3329 Apr 28 22:02	9°♄17'13	-16°-42'-56	direct	3337 Jan 29 00:01	15°♄45'55	
minimum elong	3329 Apr 28 22:07	9°♄17'13	16°42'57				
max. Earth dist.	3329 Apr 30 20:40	9°♄19'59	49.04820 AU	conjunction	3337 May 06 22:20	17°♄13'08	-16°-32'-14
retrograde	3329 Aug 09 18:19	10°♄49'58		minimum elong	3337 May 06 22:25	17°♄13'08	16°32'16
min. Earth dist.	3329 Oct 30 22:51	9°♄51'01	47.18677 AU	max. Earth dist.	3337 May 08 14:58	17°♄15'29	49.74216 AU
opposition	3329 Nov 01 19:33	9°♄48'53	-17°-24'-41	retrograde	3337 Aug 17 16:25	18°♄44'08	
direct	3330 Jan 22 02:34	8°♄49'11		min. Earth dist.	3337 Nov 08 04:28	17°♄45'29	47.86512 AU
				opposition	3337 Nov 09 17:57	17°♄43'42	-17°-11'-46
conjunction	3330 Apr 30 04:27	10°♄17'51	-16°-42'-35	direct	3338 Jan 30 05:20	16°♄44'37	
minimum elong	3330 Apr 30 04:31	10°♄17'51	16°42'36				
max. Earth dist.	3330 May 02 03:03	10°♄20'36	49.14712 AU	conjunction	3338 May 08 04:01	18°♄11'41	-16°-29'-38
retrograde	3330 Aug 10 21:21	11°♄50'20		minimum elong	3338 May 08 04:09	18°♄11'41	16°29'39
min. Earth dist.	3330 Nov 01 06:19	10°♄51'24	47.28326 AU	max. Earth dist.	3338 May 09 19:40	18°♄13'59	49.81435 AU
opposition	3330 Nov 03 01:48	10°♄49'19	-17°-24'-6	retrograde	3338 Aug 18 22:42	19°♄42'32	
direct	3331 Jan 23 12:02	9°♄49'41		min. Earth dist.	3338 Nov 09 09:58	18°♄43'58	47.93460 AU
				opposition	3338 Nov 10 23:19	18°♄42'13	-17°-8'-52
conjunction	3331 May 01 10:44	11°♄18'05	-16°-41'-58	direct	3339 Jan 31 09:02	17°♄43'12	
minimum elong	3331 May 01 10:48	11°♄18'05	16°42'00				
max. Earth dist.	3331 May 03 07:26	11°♄20'43	49.24170 AU	conjunction	3339 May 09 09:47	19°♄10'09	-16°-26'-47
retrograde	3331 Aug 12 03:43	12°♄50'19		minimum elong	3339 May 09 09:53	19°♄10'09	16°26'48
min. Earth dist.	3331 Nov 02 12:34	11°♄51'26	47.37580 AU	max. Earth dist.	3339 May 10 23:29	19°♄12'20	49.88192 AU
opposition	3331 Nov 04 07:44	11°♄49'22	-17°-23'-13	retrograde	3339 Aug 20 04:43	20°♄40'50	
direct	3332 Jan 24 18:44	10°♄49'47		min. Earth dist.	3339 Nov 10 17:17	19°♄42'17	47.99926 AU
				opposition	3339 Nov 12 04:38	19°♄40'37	-17°-5'-43
conjunction	3332 May 01 16:57	12°♄17'57	-16°-41'-4	direct	3340 Feb 01 13:11	18°♄41'42	
minimum elong	3332 May 01 17:01	12°♄17'58	16°41'05				
max. Earth dist.	3332 May 03 13:19	12°♄20'33	49.33251 AU	conjunction	3340 May 09 15:40	20°♄08'31	-16°-23'-42
retrograde	3332 Aug 12 11:09	13°♄49'57		minimum elong	3340 May 09 15:48	20°♄08'31	16°23'43
min. Earth dist.	3332 Nov 02 20:18	12°♄51'03	47.46482 AU	max. Earth dist.	3340 May 11 05:03	20°♄10'40	49.94446 AU
opposition	3332 Nov 04 13:45	12°♄49'04	-17°-22'-3	retrograde	3340 Aug 20 07:18	21°♄39'03	
direct	3333 Jan 25 01:04	11°♄49'33		min. Earth dist.	3340 Nov 10 23:48	20°♄40'31	48.05851 AU
				opposition	3340 Nov 12 09:56	20°♄38'55	-17°-2'-21
conjunction	3333 May 02 22:56	13°♄17'29	-16°-39'-53	direct	3341 Feb 01 21:00	19°♄40'03	
minimum elong	3333 May 02 23:01	13°♄17'30	16°39'55				
max. Earth dist.	3333 May 04 18:39	13°♄20'03	49.42021 AU	conjunction	3341 May 10 21:09	21°♄06'43	-16°-20'-23
retrograde	3333 Aug 13 18:25	14°♄49'15		minimum elong	3341 May 10 21:15	21°♄06'44	16°20'24
min. Earth dist.	3333 Nov 04 01:53	13°♄50'25	47.55077 AU	max. Earth dist.	3341 May 12 08:11	21°♄08'45	50.00171 AU
opposition	3333 Nov 05 19:32	13°♄48'26	-17°-20'-36	retrograde	3341 Aug 21 12:55	22°♄37'06	
direct	3334 Jan 26 04:38	12°♄48'59		min. Earth dist.	3341 Nov 12 05:46	21°♄38'37	48.11262 AU
				opposition	3341 Nov 13 15:12	21°♄37'02	-16°-58'-44
conjunction	3334 May 04 04:49	14°♄16'43	-16°-38'-24	direct	3342 Feb 03 02:38	20°♄38'14	
minimum elong	3334 May 04 04:54	14°♄16'44	16°38'25				
max. Earth dist.	3334 May 05 23:14	14°♄19'12	49.50500 AU	conjunction	3342 May 12 02:45	22°♄04'45	-16°-16'-51
	3334 Jun 05 08:31	15°♄		minimum elong	3342 May 12 02:53	22°♄04'46	16°16'53
retrograde	3334 Aug 15 00:34	15°♄48'15		max. Earth dist.	3342 May 13 13:11	22°♄06'44	50.05390 AU
	3334 Oct 27 00:39	15°♄		retrograde	3342 Aug 22 19:14	23°♄34'59	
min. Earth dist.	3334 Nov 05 08:55	14°♄49'27	47.63399 AU	opposition	3342 Nov 14 20:19	22°♄34'58	-16°-54'-53
opposition	3334 Nov 07 01:19	14°♄47'32	-17°-18'-49	min. Earth dist.	3342 Nov 13 12:56	22°♄36'27	48.16187 AU
direct	3335 Jan 27 09:15	13°♄48'09		direct	3343 Feb 04 08:55	21°♄36'13	
	3335 Apr 24 03:48	15°♄					
conjunction	3335 May 05 10:48	15°♄15'42	-16°-36'-38	conjunction	3343 May 13 08:16	23°♄02'35	-16°-13'-4
				minimum elong	3343 May 13 08:23	23°♄02'36	16°13'05

max. Earth dist.	3343 May 14 17:36	23° 8 04'30	50.10171 AU	conjunction	3351 May 21 02:05	0° II 40'08	-15°-33'-41
retrograde	3343 Aug 24 02:38	24° 8 32'39		minimum elong	3351 May 21 02:15	0° II 40'08	15°33'42
min. Earth dist.	3343 Nov 14 17:56	23° 8 34'09	48.20690 AU	max. Earth dist.	3351 May 22 03:03	0° II 41'33	50.36193 AU
opposition	3343 Nov 16 01:13	23° 8 32'41	-16°-50'-47	retrograde	3351 Aug 31 16:51	2° II 09'17	
direct	3344 Feb 05 11:33	22° 8 33'58		opposition	3351 Nov 23 14:49	1° II 09'49	-16°-8'-36
				min. Earth dist.	3351 Nov 22 15:26	1° II 10'54	48.44596 AU
conjunction	3344 May 13 13:34	24° 8 00'13	-16°-9'-2	direct	3352 Feb 13 02:03	0° II 11'28	
minimum elong	3344 May 13 13:42	24° 8 00'13	16°09'03				
max. Earth dist.	3344 May 14 21:21	24° 8 02'02	50.14547 AU	conjunction	3352 May 21 07:23	1° II 37'02	-15°-27'-42
retrograde	3344 Aug 24 08:57	25° 8 30'07		minimum elong	3352 May 21 07:32	1° II 37'03	15°27'42
min. Earth dist.	3344 Nov 15 00:29	24° 8 31'36	48.24831 AU	max. Earth dist.	3352 May 22 07:24	1° II 38'24	50.37638 AU
opposition	3344 Nov 16 06:06	24° 8 30'13	-16°-46'-26	retrograde	3352 Aug 31 21:17	3° II 06'07	
direct	3345 Feb 05 13:57	23° 8 31'31		opposition	3352 Nov 23 19:25	2° II 06'41	-16°-2'-15
				min. Earth dist.	3352 Nov 22 22:15	2° II 07'40	48.45668 AU
conjunction	3345 May 14 18:57	24° 8 57'39	-16°-4'-45	direct	3353 Feb 13 09:03	1° II 08'21	
minimum elong	3345 May 14 19:05	24° 8 57'39	16°04'45				
max. Earth dist.	3345 May 16 02:48	24° 8 59'28	50.18595 AU	conjunction	3353 May 22 12:39	2° II 33'50	-15°-21'-30
retrograde	3345 Aug 25 10:19	26° 8 27'25		minimum elong	3353 May 22 12:49	2° II 33'51	15°21'31
min. Earth dist.	3345 Nov 16 05:46	25° 8 28'55	48.28645 AU	max. Earth dist.	3353 May 23 11:17	2° II 35'07	50.38547 AU
opposition	3345 Nov 17 10:53	25° 8 27'33	-16°-41'-48	retrograde	3353 Sep 02 03:59	4° II 02'50	
direct	3346 Feb 06 21:43	24° 8 28'54		opposition	3353 Nov 24 23:54	3° II 03'25	-15°-55'-42
				min. Earth dist.	3353 Nov 24 03:07	3° II 04'23	48.46198 AU
conjunction	3346 May 16 00:01	25° 8 54'55	-16°00'-12	direct	3354 Feb 14 12:36	2° II 05'05	
minimum elong	3346 May 16 00:10	25° 8 54'56	16°00'13				
max. Earth dist.	3346 May 17 06:07	25° 8 56'39	50.22343 AU	conjunction	3354 May 23 17:41	3° II 30'30	-15°-15'-5
retrograde	3346 Aug 26 14:00	27° 8 24'34		minimum elong	3354 May 23 17:50	3° II 30'31	15°15'06
min. Earth dist.	3346 Nov 17 10:58	26° 8 26'06	48.32170 AU	max. Earth dist.	3354 May 24 14:17	3° II 31'40	50.38919 AU
opposition	3346 Nov 18 15:40	26° 8 24'45	-16°-36'-54	retrograde	3354 Sep 03 11:11	4° II 59'23	
direct	3347 Feb 08 04:24	25° 8 26'09		min. Earth dist.	3354 Nov 25 09:44	4° II 00'52	48.46220 AU
				opposition	3354 Nov 26 04:28	3° II 59'59	-15°-48'-55
conjunction	3347 May 17 05:20	26° 8 52'05	-15°-55'-24	direct	3355 Feb 15 14:23	3° II 01'39	
minimum elong	3347 May 17 05:29	26° 8 52'05	15°55'24				
max. Earth dist.	3347 May 18 11:13	26° 8 53'47	50.25794 AU	conjunction	3355 May 24 22:57	4° II 27'01	-15°-8'-28
retrograde	3347 Aug 27 20:27	28° 8 21'36		minimum elong	3355 May 24 23:07	4° II 27'01	15°08'29
opposition	3347 Nov 19 20:20	27° 8 21'52	-16°-31'-45	max. Earth dist.	3355 May 25 19:16	4° II 28'10	50.38812 AU
min. Earth dist.	3347 Nov 18 17:19	27° 8 23'08	48.35391 AU	retrograde	3355 Sep 04 13:28	5° II 55'48	
direct	3348 Feb 09 10:09	26° 8 23'19		opposition	3355 Nov 27 08:41	4° II 56'24	-15°-41'-55
				min. Earth dist.	3355 Nov 26 14:48	4° II 57'14	48.45779 AU
conjunction	3348 May 17 10:34	27° 8 49'09	-15°-50'-20	direct	3356 Feb 16 20:47	3° II 58'03	
minimum elong	3348 May 17 10:42	27° 8 49'09	15°50'22				
max. Earth dist.	3348 May 18 15:31	27° 8 50'48	50.28955 AU	conjunction	3356 May 25 03:57	5° II 23'21	-15°-1'-37
retrograde	3348 Aug 28 03:10	29° 8 18'34		minimum elong	3356 May 25 04:07	5° II 23'22	15°01'38
min. Earth dist.	3348 Nov 18 21:48	28° 8 20'11	48.38298 AU	max. Earth dist.	3356 May 25 22:12	5° II 24'23	50.38284 AU
opposition	3348 Nov 20 00:56	28° 8 18'54	-16°-26'-20	retrograde	3356 Sep 04 16:35	6° II 52'03	
direct	3349 Feb 09 12:58	27° 8 20'25		opposition	3356 Nov 27 13:02	5° II 52'40	-15°-34'-41
				min. Earth dist.	3356 Nov 26 19:53	5° II 53'28	48.44954 AU
conjunction	3349 May 18 15:32	28° 8 46'10	-15°-45'-1	direct	3357 Feb 17 02:31	4° II 54'18	
minimum elong	3349 May 18 15:42	28° 8 46'11	15°45'02				
max. Earth dist.	3349 May 19 18:58	28° 8 47'44	50.31775 AU	conjunction	3357 May 26 08:50	6° II 19'34	-14°-54'-32
	3349 Jul 21 05:05	0° II		minimum elong	3357 May 26 09:01	6° II 19'35	14°54'34
retrograde	3349 Aug 29 09:42	0° II 15'30		max. Earth dist.	3357 May 27 02:46	6° II 20'35	50.37381 AU
	3349 Oct 07 20:16	30° R 8		retrograde	3357 Sep 05 21:20	7° II 48'13	
min. Earth dist.	3349 Nov 20 04:19	29° 8 17'05	48.40847 AU	opposition	3357 Nov 28 17:27	6° II 48'50	-15°-27'-12
opposition	3349 Nov 21 05:42	29° 8 15'54	-16°-20'-39	min. Earth dist.	3357 Nov 28 01:56	6° II 49'34	48.43775 AU
direct	3350 Feb 10 15:22	28° 8 17'28		direct	3358 Feb 18 08:35	5° II 50'29	
conjunction	3350 May 19 20:51	29° 8 43'10	-15°-39'-28	conjunction	3358 May 27 13:51	7° II 15'42	-14°-47'-13
minimum elong	3350 May 19 20:59	29° 8 43'10	15°39'29	minimum elong	3358 May 27 14:02	7° II 15'43	14°47'14
max. Earth dist.	3350 May 21 00:12	29° 8 44'43	50.34213 AU	max. Earth dist.	3358 May 28 06:51	7° II 16'40	50.36167 AU
	3350 Jun 01 06:29	0° II		retrograde	3358 Sep 07 03:50	8° II 44'19	
retrograde	3350 Aug 30 12:03	1° II 12'24		opposition	3358 Nov 29 21:35	7° II 44'57	-15°-19'-29
min. Earth dist.	3350 Nov 21 09:53	0° II 14'01	48.42966 AU	min. Earth dist.	3358 Nov 29 05:53	7° II 45'41	48.42287 AU
opposition	3350 Nov 22 10:13	0° II 12'53	-16°-14'-44	direct	3359 Feb 19 11:24	6° II 46'36	
	3350 Dec 04 00:01	30° R 8					
direct	3351 Feb 11 21:06	29° 8 14'29		conjunction	3359 May 28 18:48	8° II 11'49	-14°-39'-39
	3351 Apr 20 11:28	0° II		minimum elong	3359 May 28 18:58	8° II 11'50	14°39'41
				max. Earth dist.	3359 May 29 10:13	8° II 12'41	50.34640 AU

retrograde	3359 Sep 08 10:06	9°II40'23		direct	3368 Feb 28 03:44	15°II13'43	
min. Earth dist.	3359 Nov 30 11:57	8°II41'43	48.40497 AU				
opposition	3359 Dec 01 01:56	8°II41'03	-15°-11'-30	conjunction	3368 Jun 05 16:40	16°II39'12	-13°-21'-26
direct	3360 Feb 20 13:42	7°II42'43		minimum elong	3368 Jun 05 16:52	16°II39'12	13°21'27
				max. Earth dist.	3368 Jun 05 21:30	16°II39'28	50.02802 AU
conjunction	3360 May 28 23:48	9°II07'57	-14°-31'-51	retrograde	3368 Sep 16 03:57	18°II07'45	
minimum elong	3360 May 29 00:00	9°II07'58	14°31'51	opposition	3368 Dec 08 15:48	17°II08'29	-13°-49'-20
max. Earth dist.	3360 May 29 15:21	9°II08'50	50.32815 AU	min. Earth dist.	3368 Dec 08 11:36	17°II08'41	48.05507 AU
retrograde	3360 Sep 08 12:28	10°II36'30		direct	3369 Feb 28 07:43	16°II09'59	
opposition	3360 Dec 01 06:04	9°II37'12	-15°-3'-16				
min. Earth dist.	3360 Nov 30 16:37	9°II37'50	48.38385 AU	conjunction	3369 Jun 06 21:42	17°II35'30	-13°-11'-39
direct	3361 Feb 20 18:44	8°II38'53		minimum elong	3369 Jun 06 21:53	17°II35'30	13°11'39
				max. Earth dist.	3369 Jun 07 00:51	17°II35'40	49.97038 AU
conjunction	3361 May 30 04:41	10°II04'09	-14°-23'-48	retrograde	3369 Sep 17 10:37	19°II04'04	
minimum elong	3361 May 30 04:51	10°II04'10	14°23'49	opposition	3369 Dec 09 20:03	18°II04'45	-13°-39'-5
max. Earth dist.	3361 May 30 18:12	10°II04'55	50.30671 AU	min. Earth dist.	3369 Dec 09 17:37	18°II04'52	47.99454 AU
retrograde	3361 Sep 09 16:51	11°II32'42		direct	3370 Mar 01 09:51	17°II06'12	
opposition	3361 Dec 02 10:17	10°II33'27	-14°-54'-47				
min. Earth dist.	3361 Dec 01 21:34	10°II34'02	48.35941 AU	conjunction	3370 Jun 08 02:51	18°II31'46	-13°-1'-38
direct	3362 Feb 21 23:15	9°II35'09		minimum elong	3370 Jun 08 03:02	18°II31'46	13°01'39
				max. Earth dist.	3370 Jun 08 06:06	18°II31'57	49.90970 AU
conjunction	3362 May 31 09:44	11°II00'27	-14°-15'-31	retrograde	3370 Sep 18 14:30	20°II00'21	
minimum elong	3362 May 31 09:55	11°II00'27	14°15'32	opposition	3370 Dec 11 00:13	19°II01'00	-13°-28'-35
max. Earth dist.	3362 May 31 22:43	11°II01'11	50.28149 AU	min. Earth dist.	3370 Dec 10 22:11	19°II01'06	47.93096 AU
retrograde	3362 Sep 10 21:16	12°II29'01		direct	3371 Mar 02 14:08	18°II02'24	
opposition	3362 Dec 03 14:34	11°II29'49	-14°-46'-5				
min. Earth dist.	3362 Dec 03 03:50	11°II30'19	48.33079 AU	conjunction	3371 Jun 09 07:58	19°II28'02	-12°-51'-23
direct	3363 Feb 23 05:30	10°II31'32		minimum elong	3371 Jun 09 08:10	19°II28'03	12°51'23
				max. Earth dist.	3371 Jun 09 09:15	19°II28'06	49.84618 AU
conjunction	3363 Jun 01 14:56	11°II56'51	-14°-7'-1	retrograde	3371 Sep 19 18:40	20°II56'39	
minimum elong	3363 Jun 01 15:06	11°II56'52	14°07'02	opposition	3371 Dec 12 04:20	19°II57'17	-13°-17'-50
max. Earth dist.	3363 Jun 02 02:37	11°II57'31	50.25191 AU	min. Earth dist.	3371 Dec 12 02:57	19°II57'21	47.86467 AU
retrograde	3363 Sep 12 04:11	13°II25'27		direct	3372 Mar 02 18:29	18°II58'38	
opposition	3363 Dec 04 18:38	12°II26'16	-14°-37'-10				
min. Earth dist.	3363 Dec 04 08:22	12°II26'45	48.29742 AU	conjunction	3372 Jun 09 13:13	20°II24'21	-12°-40'-53
direct	3364 Feb 24 08:44	11°II27'59		minimum elong	3372 Jun 09 13:24	20°II24'22	12°40'55
				max. Earth dist.	3372 Jun 09 14:08	20°II24'24	49.77983 AU
conjunction	3364 Jun 01 20:06	12°II53'22	-13°-58'-19	retrograde	3372 Sep 19 22:07	21°II53'03	
minimum elong	3364 Jun 01 20:18	12°II53'22	13°58'20	opposition	3372 Dec 12 08:41	20°II53'40	-13°-6'-49
max. Earth dist.	3364 Jun 02 05:33	12°II53'54	50.21718 AU	min. Earth dist.	3372 Dec 12 08:51	20°II53'39	47.79545 AU
retrograde	3364 Sep 12 12:51	14°II21'57		direct	3373 Mar 04 00:33	19°II54'59	
opposition	3364 Dec 04 23:01	13°II22'47	-14°-28'-2				
min. Earth dist.	3364 Dec 04 14:55	13°II23'09	48.25879 AU	conjunction	3373 Jun 10 18:18	21°II20'48	-12°-30'-9
direct	3365 Feb 24 09:04	12°II24'29		minimum elong	3373 Jun 10 18:31	21°II20'48	12°30'10
				max. Earth dist.	3373 Jun 10 18:27	21°II20'48	49.71065 AU
conjunction	3365 Jun 03 01:14	13°II49'53	-13°-49'-25	retrograde	3373 Sep 21 03:56	22°II49'34	
minimum elong	3365 Jun 03 01:24	13°II49'54	13°49'25	opposition	3373 Dec 13 12:57	21°II50'11	-12°-55'-34
max. Earth dist.	3365 Jun 03 10:13	13°II50'24	50.17718 AU	min. Earth dist.	3373 Dec 13 13:08	21°II50'10	47.72311 AU
retrograde	3365 Sep 13 16:23	15°II18'28		direct	3374 Mar 05 04:53	20°II51'29	
opposition	3365 Dec 06 03:19	14°II19'18	-14°-18'-41				
min. Earth dist.	3365 Dec 05 20:06	14°II19'38	48.21474 AU	conjunction	3374 Jun 11 23:38	22°II17'25	-12°-19'-10
direct	3366 Feb 25 14:17	13°II20'58		minimum elong	3374 Jun 11 23:48	22°II17'25	12°19'12
				max. Earth dist.	3374 Jun 11 21:51	22°II17'19	49.63789 AU
conjunction	3366 Jun 04 06:22	14°II46'23	-13°-40'-18	retrograde	3374 Sep 22 12:31	23°II46'17	
minimum elong	3366 Jun 04 06:34	14°II46'24	13°40'20	opposition	3374 Dec 14 17:17	22°II46'54	-12°-44'-5
max. Earth dist.	3366 Jun 04 13:02	14°II46'46	50.13201 AU	min. Earth dist.	3374 Dec 14 19:33	22°II46'47	47.64697 AU
retrograde	3366 Sep 14 18:48	16°II14'57		direct	3375 Mar 06 06:13	21°II48'10	
opposition	3366 Dec 07 07:29	15°II15'45	-14°-9'-8				
min. Earth dist.	3366 Dec 07 01:26	15°II16'02	48.16582 AU	conjunction	3375 Jun 13 05:13	23°II14'14	-12°-7'-59
direct	3367 Feb 26 20:09	14°II17'23		minimum elong	3375 Jun 13 05:26	23°II14'15	12°08'00
				max. Earth dist.	3375 Jun 13 03:09	23°II14'07	49.56100 AU
conjunction	3367 Jun 05 11:36	15°II42'50	-13°-30'-58	retrograde	3375 Sep 23 17:40	24°II43'12	
minimum elong	3367 Jun 05 11:47	15°II42'50	13°30'59	opposition	3375 Dec 15 21:40	23°II43'48	-12°-32'-22
max. Earth dist.	3367 Jun 05 17:27	15°II43'10	50.08205 AU	min. Earth dist.	3375 Dec 16 00:45	23°II43'40	47.56618 AU
retrograde	3367 Sep 15 21:44	17°II11'24		direct	3376 Mar 06 10:20	22°II45'02	
opposition	3367 Dec 08 11:44	16°II12'09	-13°-59'-21				
min. Earth dist.	3367 Dec 08 07:32	16°II12'21	48.11235 AU	conjunction	3376 Jun 13 10:39	24°II11'16	-11°-56'-34

minimum elong	3376 Jun 13 10:50	24°II11'16	11°56'35	conjunction	3384 Jun 21 08:43	1°☾52'16	-10°-17'-20
max. Earth dist.	3376 Jun 13 06:07	24°II11'00	49.47919 AU	minimum elong	3384 Jun 21 08:55	1°☾52'16	10°17'21
retrograde	3376 Sep 23 22:23	25°II40'20		max. Earth dist.	3384 Jun 20 18:21	1°☾51'26	48.66282 AU
opposition	3376 Dec 16 02:08	24°II40'55	-12°-20'-26	retrograde	3384 Oct 01 19:32	3°☾22'21	
min. Earth dist.	3376 Dec 16 06:33	24°II40'42	47.48033 AU	opposition	3384 Dec 23 15:12	2°☾22'27	-10°-36'-35
direct	3377 Mar 07 15:01	23°II42'05		min. Earth dist.	3384 Dec 24 04:40	2°☾21'49	46.63695 AU
				direct	3385 Mar 15 05:17	1°☾22'57	
conjunction	3377 Jun 14 16:19	25°II08'27	-11°-44'-57				
minimum elong	3377 Jun 14 16:31	25°II08'28	11°44'58	conjunction	3385 Jun 22 14:52	2°☾50'40	-10°-3'-51
max. Earth dist.	3377 Jun 14 10:44	25°II08'08	49.39208 AU	minimum elong	3385 Jun 22 15:03	2°☾50'40	10°03'53
retrograde	3377 Sep 25 01:30	26°II37'38		max. Earth dist.	3385 Jun 22 00:33	2°☾49'50	48.54589 AU
opposition	3377 Dec 17 06:41	25°II38'10	-12°-8'-16	retrograde	3385 Oct 03 02:54	4°☾20'56	
min. Earth dist.	3377 Dec 17 13:03	25°II37'52	47.38913 AU	opposition	3385 Dec 24 20:04	3°☾20'59	-10°-22'-29
direct	3378 Mar 08 22:31	24°II39'17		min. Earth dist.	3385 Dec 25 09:58	3°☾20'19	46.51688 AU
				direct	3386 Mar 16 08:15	2°☾21'24	
conjunction	3378 Jun 15 21:58	26°II05'46	-11°-33'-7				
minimum elong	3378 Jun 15 22:09	26°II05'47	11°33'08	conjunction	3386 Jun 23 21:00	3°☾49'21	-9°-50'-8
max. Earth dist.	3378 Jun 15 15:00	26°II05'23	49.29991 AU	minimum elong	3386 Jun 23 21:12	3°☾49'22	9°50'09
retrograde	3378 Sep 26 08:09	27°II35'03		max. Earth dist.	3386 Jun 23 04:34	3°☾48'24	48.42559 AU
opposition	3378 Dec 18 11:09	26°II35'33	-11°-55'-54	retrograde	3386 Oct 04 09:51	5°☾19'48	
min. Earth dist.	3378 Dec 18 17:53	26°II35'14	47.29292 AU	opposition	3386 Dec 26 01:05	4°☾19'48	-10°-8'-7
direct	3379 Mar 10 02:48	25°II36'34		min. Earth dist.	3386 Dec 26 16:16	4°☾19'05	46.39317 AU
				direct	3387 Mar 17 12:22	3°☾20'08	
conjunction	3379 Jun 17 03:41	27°II03'13	-11°-21'-4	max. Earth dist.	3387 Jun 24 10:07	4°☾47'20	48.30106 AU
minimum elong	3379 Jun 17 03:53	27°II03'13	11°21'06				
max. Earth dist.	3379 Jun 16 18:37	27°II02'42	49.20278 AU	conjunction	3387 Jun 25 03:30	4°☾48'20	-9°-36'-11
retrograde	3379 Sep 27 15:45	28°II32'36		minimum elong	3387 Jun 25 03:41	4°☾48'21	9°36'11
opposition	3379 Dec 19 15:40	27°II33'02	-11°-43'-18	retrograde	3387 Oct 05 12:25	6°☾19'00	
min. Earth dist.	3379 Dec 20 00:37	27°II32'36	47.19216 AU	opposition	3387 Dec 27 06:12	5°☾18'56	-9°-53'-31
direct	3380 Mar 10 04:56	26°II33'58		min. Earth dist.	3387 Dec 27 23:13	5°☾18'07	46.26487 AU
				direct	3388 Mar 17 20:55	4°☾19'10	
conjunction	3380 Jun 17 09:29	28°II00'45	-11°-8'-48				
minimum elong	3380 Jun 17 09:40	28°II00'46	11°08'49	conjunction	3388 Jun 25 10:04	5°☾47'37	-9°-21'-59
max. Earth dist.	3380 Jun 17 00:13	28°II00'13	49.10144 AU	minimum elong	3388 Jun 25 10:15	5°☾47'37	9°22'00
retrograde	3380 Sep 27 20:42	29°II30'15		max. Earth dist.	3388 Jun 24 15:18	5°☾46'31	48.17183 AU
opposition	3380 Dec 19 20:14	28°II30'36	-11°-30'-28	retrograde	3388 Oct 05 18:07	7°☾18'29	
min. Earth dist.	3380 Dec 20 05:37	28°II30'10	47.08738 AU	opposition	3388 Dec 27 11:25	6°☾18'20	-9°-38'-41
direct	3381 Mar 11 09:45	27°II31'27		min. Earth dist.	3388 Dec 28 04:55	6°☾17'29	46.13160 AU
				direct	3389 Mar 19 03:14	5°☾18'27	
conjunction	3381 Jun 18 15:02	28°II58'24	-10°-56'-18				
minimum elong	3381 Jun 18 15:13	28°II58'25	10°56'19	conjunction	3389 Jun 26 16:34	6°☾47'08	-9°-7'-35
max. Earth dist.	3381 Jun 18 03:44	28°II57'45	48.99642 AU	minimum elong	3389 Jun 26 16:45	6°☾47'08	9°07'36
	3381 Aug 07 04:04	0°☾		max. Earth dist.	3389 Jun 25 19:32	6°☾45'55	48.03732 AU
retrograde	3381 Sep 29 01:25	0°☾28'01		retrograde	3389 Oct 07 02:34	8°☾18'13	
	3381 Nov 21 14:52	30°☾II		opposition	3389 Dec 28 16:56	7°☾17'58	-9°-23'-37
opposition	3381 Dec 21 00:53	29°II28'18	-11°-17'-23	min. Earth dist.	3389 Dec 29 12:48	7°☾17'00	45.99306 AU
min. Earth dist.	3381 Dec 21 11:12	29°II27'49	46.97925 AU	direct	3390 Mar 20 06:51	6°☾17'56	
direct	3382 Mar 12 14:47	28°II29'03					
				conjunction	3390 Jun 27 23:28	7°☾46'52	-8°-52'-57
conjunction	3382 Jun 19 20:57	29°II56'11	-10°-43'-33	minimum elong	3390 Jun 27 23:39	7°☾46'52	8°52'59
minimum elong	3382 Jun 19 21:08	29°II56'11	10°43'34	max. Earth dist.	3390 Jun 27 01:52	7°☾45'36	47.89766 AU
max. Earth dist.	3382 Jun 19 09:11	29°II55'30	48.88808 AU	retrograde	3390 Oct 08 09:18	9°☾18'08	
	3382 Jun 22 15:51	0°☾		opposition	3390 Dec 29 22:13	8°☾17'46	-9°-8'-18
retrograde	3382 Sep 30 04:48	1°☾25'56		min. Earth dist.	3390 Dec 30 18:46	8°☾16'47	45.84944 AU
opposition	3382 Dec 22 05:33	0°☾26'09	-11°-4'-2	direct	3391 Mar 21 12:20	7°☾17'36	
min. Earth dist.	3382 Dec 22 17:22	0°☾25'36	46.86797 AU	max. Earth dist.	3391 Jun 28 06:14	8°☾45'22	47.75317 AU
	3383 Jan 14 23:18	30°☾II					
direct	3383 Mar 13 21:31	29°II26'49		conjunction	3391 Jun 29 06:17	8°☾46'46	-8°-38'-5
	3383 May 09 15:54	0°☾		minimum elong	3391 Jun 29 06:27	8°☾46'47	8°38'06
				retrograde	3391 Oct 09 16:56	10°☾18'15	
conjunction	3383 Jun 21 02:54	0°☾54'07	-10°-30'-34	opposition	3391 Dec 31 03:45	9°☾17'45	-8°-52'-45
minimum elong	3383 Jun 21 03:05	0°☾54'08	10°30'36	min. Earth dist.	3392 Jan 01 01:39	9°☾16'41	45.70136 AU
max. Earth dist.	3383 Jun 20 14:13	0°☾53'23	48.77691 AU	direct	3392 Mar 21 16:55	8°☾17'25	
retrograde	3383 Oct 01 10:24	2°☾24'02					
opposition	3383 Dec 23 10:16	1°☾24'12	-10°-50'-27	conjunction	3392 Jun 29 13:08	9°☾46'51	-8°-22'-59
min. Earth dist.	3383 Dec 23 22:02	1°☾23'38	46.75389 AU	minimum elong	3392 Jun 29 13:19	9°☾46'52	8°23'01
direct	3384 Mar 14 03:08	0°☾24'46		max. Earth dist.	3392 Jun 28 12:29	9°☾45'25	47.60431 AU

retrograde	3392 Oct 09 21:36	11°  18'33		direct	3401 Mar 31 23:18	17°  29'49	
opposition	3392 Dec 31 09:22	10°  17'55	-8°-36'-57	max. Earth dist.	3401 Jul 08 21:48	19°  00'19	46.12667 AU
min. Earth dist.	3393 Jan 01 08:47	10°  16'47	45.54923 AU				
direct	3393 Mar 23 00:28	9°  17'25		conjunction	3401 Jul 10 09:32	19°  02'28	-5°-55'-41
				minimum elong	3401 Jul 10 09:41	19°  02'28	5°55'43
conjunction	3393 Jun 30 20:05	10°  47'08	-8°-7'-38	retrograde	3401 Oct 20 21:39	20°  36'59	
minimum elong	3393 Jun 30 20:15	10°  47'08	8°07'39	opposition	3402 Jan 10 17:15	19°  35'18	-6°-2'-34
max. Earth dist.	3393 Jun 29 18:20	10°  45'37	47.45192 AU	min. Earth dist.	3402 Jan 12 01:41	19°  33'41	44.04527 AU
retrograde	3393 Oct 11 03:00	12°  19'03		direct	3402 Apr 02 03:37	18°  33'25	
opposition	3394 Jan 01 14:53	11°  18'18	-8°-20'-52	max. Earth dist.	3402 Jul 10 05:42	20°  04'17	45.94357 AU
min. Earth dist.	3394 Jan 02 14:26	11°  17'09	45.39388 AU				
direct	3394 Mar 24 07:16	10°  17'38		conjunction	3402 Jul 11 18:13	20°  06'29	-5°-38'-4
max. Earth dist.	3394 Jun 30 23:40	11°  46'01	47.29633 AU	minimum elong	3402 Jul 11 18:21	20°  06'29	5°38'05
				retrograde	3402 Oct 22 05:32	21°  41'22	
conjunction	3394 Jul 02 03:11	11°  47'38	-7°-52'-3	opposition	3403 Jan 12 00:22	20°  39'30	-5°-44'-5
minimum elong	3394 Jul 02 03:21	11°  47'39	7°52'04	min. Earth dist.	3403 Jan 13 10:17	20°  37'48	43.85877 AU
retrograde	3394 Oct 12 11:18	13°  19'50		direct	3403 Apr 03 12:14	19°  37'25	
opposition	3395 Jan 02 20:46	12°  18'56	-8°-4'-32	max. Earth dist.	3403 Jul 11 12:47	21°  08'35	45.75612 AU
min. Earth dist.	3395 Jan 03 22:06	12°  17'42	45.23561 AU				
direct	3395 Mar 25 11:57	11°  18'07		conjunction	3403 Jul 13 02:55	21°  10'54	-5°-20'-11
max. Earth dist.	3395 Jul 02 07:06	12°  46'50	47.13805 AU	minimum elong	3403 Jul 13 03:03	21°  10'54	5°20'13
				retrograde	3403 Oct 23 12:17	22°  46'08	
conjunction	3395 Jul 03 10:30	12°  48'26	-7°-36'-12	opposition	3404 Jan 13 07:25	21°  44'06	-5°-25'-20
minimum elong	3395 Jul 03 10:40	12°  48'27	7°36'12	min. Earth dist.	3404 Jan 14 17:51	21°  42'22	43.66822 AU
retrograde	3395 Oct 13 19:48	14°  20'54		direct	3404 Apr 03 20:44	20°  41'48	
opposition	3396 Jan 04 02:33	13°  19'54	-7°-47'-56	max. Earth dist.	3404 Jul 11 19:54	22°  13'16	45.56466 AU
min. Earth dist.	3396 Jan 05 03:58	13°  18'39	45.07475 AU				
direct	3396 Mar 25 16:07	12°  18'56		conjunction	3404 Jul 13 11:47	22°  15'41	-5°-2'-4
				minimum elong	3404 Jul 13 11:54	22°  15'42	5°02'04
conjunction	3396 Jul 03 17:48	13°  49'35	-7°-20'-5	retrograde	3404 Oct 23 19:16	23°  51'19	
minimum elong	3396 Jul 03 17:57	13°  49'36	7°20'07	opposition	3405 Jan 13 14:51	22°  49'04	-5°-6'-19
max. Earth dist.	3396 Jul 02 12:24	13°  47'51	46.97736 AU	min. Earth dist.	3405 Jan 15 03:13	22°  47'15	43.47410 AU
retrograde	3396 Oct 14 05:04	15°  22'21		direct	3405 Apr 05 05:07	21°  46'33	
opposition	3397 Jan 04 08:38	14°  21'14	-7°-31'-3	max. Earth dist.	3405 Jul 13 04:49	23°  18'26	45.36999 AU
min. Earth dist.	3397 Jan 05 11:07	14°  19'57	44.91163 AU				
direct	3397 Mar 26 20:06	13°  20'08		conjunction	3405 Jul 14 20:46	23°  20'52	-4°-43'-41
max. Earth dist.	3397 Jul 03 19:35	14°  49'24	46.81418 AU	minimum elong	3405 Jul 14 20:53	23°  20'52	4°43'42
				retrograde	3405 Oct 25 04:49	24°  56'53	
conjunction	3397 Jul 05 01:17	14°  51'10	-7°-3'-43	opposition	3406 Jan 14 22:19	23°  54'26	-4°-47'00
minimum elong	3397 Jul 05 01:26	14°  51'10	7°03'44	min. Earth dist.	3406 Jan 16 10:46	23°  52'36	43.27696 AU
retrograde	3397 Oct 15 09:47	16°  24'15		direct	3406 Apr 06 11:38	22°  51'40	
opposition	3398 Jan 05 14:55	15°  23'02	-7°-13'-53	max. Earth dist.	3406 Jul 14 11:52	24°  23'53	45.17248 AU
min. Earth dist.	3398 Jan 06 18:33	15°  21'41	44.74581 AU				
direct	3398 Mar 28 04:50	14°  21'48		conjunction	3406 Jul 16 05:59	24°  26'27	-4°-25'-2
max. Earth dist.	3398 Jul 05 02:15	15°  51'23	46.64826 AU	minimum elong	3406 Jul 16 06:05	24°  26'27	4°25'02
				retrograde	3406 Oct 26 16:21	26°  02'52	
conjunction	3398 Jul 06 09:04	15°  53'13	-6°-47'-5	opposition	3407 Jan 16 05:58	25°  00'14	-4°-27'-25
minimum elong	3398 Jul 06 09:12	15°  53'14	6°47'06	min. Earth dist.	3407 Jan 17 19:52	24°  58'19	43.07741 AU
retrograde	3398 Oct 16 16:15	17°  26'39		direct	3407 Apr 07 16:14	23°  57'13	
opposition	3399 Jan 06 21:04	16°  25'20	-6°-56'-27	max. Earth dist.	3407 Jul 15 21:17	25°  29'53	44.97261 AU
min. Earth dist.	3399 Jan 08 01:07	16°  23'57	44.57697 AU				
direct	3399 Mar 29 12:25	15°  23'58		conjunction	3407 Jul 17 15:32	25°  32'29	-4°-6'-7
max. Earth dist.	3399 Jul 06 08:22	16°  53'51	46.47871 AU	minimum elong	3407 Jul 17 15:38	25°  32'29	4°06'09
				retrograde	3407 Oct 28 01:17	27°  09'19	
conjunction	3399 Jul 07 17:05	16°  55'48	-6°-30'-12	opposition	3408 Jan 17 13:57	26°  06'29	-4°-7'-33
minimum elong	3399 Jul 07 17:14	16°  55'48	6°30'13	min. Earth dist.	3408 Jan 19 04:30	26°  04'31	42.87567 AU
retrograde	3399 Oct 18 01:31	18°  29'36		direct	3408 Apr 08 01:13	25°  03'15	
opposition	3400 Jan 08 03:42	17°  28'10	-6°-38'-45	max. Earth dist.	3408 Jul 16 05:37	26°  36'20	44.77084 AU
min. Earth dist.	3400 Jan 09 10:00	17°  26'40	44.40426 AU				
direct	3400 Mar 30 17:15	16°  26'39		conjunction	3408 Jul 18 00:59	26°  39'00	-3°-46'-56
max. Earth dist.	3400 Jul 07 16:02	17°  56'54	46.30501 AU	minimum elong	3408 Jul 18 01:04	26°  39'01	3°46'57
				retrograde	3408 Oct 28 10:27	28°  16'18	
conjunction	3400 Jul 09 01:13	17°  58'53	-6°-13'-4	opposition	3409 Jan 17 22:04	27°  13'16	-3°-47'-23
minimum elong	3400 Jul 09 01:21	17°  58'53	6°13'05	min. Earth dist.	3409 Jan 19 12:49	27°  11'18	42.67216 AU
retrograde	3400 Oct 19 10:17	19°  33'03		direct	3409 Apr 09 10:32	26°  09'49	
opposition	3401 Jan 09 10:24	18°  31'30	-6°-20'-48	max. Earth dist.	3409 Jul 17 14:19	27°  43'21	44.56704 AU
min. Earth dist.	3401 Jan 10 17:06	18°  29'59	44.22706 AU				

conjunction	3409 Jul 19 10:55	27° 5 46'07	-3°-27'-29	max. Earth dist.	3417 Jul 26 22:59	7° 0 04'56	42.81728 AU
minimum elong	3409 Jul 19 11:00	27° 5 46'07	3°27'31				
retrograde	3409 Oct 29 19:17	29° 5 23'53		conjunction	3417 Jul 29 05:15	7° 0 08'27	0°-42'-34
opposition	3410 Jan 19 06:27	28° 5 20'41	-3°-26'-56	minimum elong	3417 Jul 29 05:16	7° 0 08'27	0°42'34
min. Earth dist.	3410 Jan 20 22:59	28° 5 18'36	42.46661 AU	retrograde	3417 Nov 08 15:57	8° 0 50'44	
direct	3410 Apr 10 19:15	27° 5 17'01		opposition	3418 Jan 28 11:04	7° 0 45'47	0°-33'-15
max. Earth dist.	3410 Jul 19 00:20	28° 5 51'04	44.36111 AU	min. Earth dist.	3418 Jan 30 12:07	7° 0 43'11	40.69930 AU
				direct	3418 Apr 19 18:49	6° 0 40'00	
conjunction	3410 Jul 20 21:12	28° 5 53'52	-3°-7'-46	max. Earth dist.	3418 Jul 28 09:45	8° 0 18'19	42.58344 AU
minimum elong	3410 Jul 20 21:16	28° 5 53'52	3°07'47				
	3410 Sep 07 05:32	0° 0		conjunction	3418 Jul 30 17:47	8° 0 21'58	0°-20'-48
retrograde	3410 Oct 31 05:03	0° 0 32'10		minimum elong	3418 Jul 30 17:48	8° 0 21'58	0°20'50
	3410 Dec 25 02:01	30° R 5		retrograde	3418 Nov 10 07:16	10° 0 04'52	
opposition	3411 Jan 20 15:00	29° 5 28'47	-3°-6'-12	opposition	3419 Jan 29 21:53	8° 0 59'39	0°-10'-18
min. Earth dist.	3411 Jan 22 07:34	29° 5 26'42	42.25856 AU	min. Earth dist.	3419 Jan 31 23:44	8° 0 57'00	40.46439 AU
direct	3411 Apr 12 03:41	28° 5 24'54		direct	3419 Apr 21 04:54	7° 0 53'33	
max. Earth dist.	3411 Jul 20 08:32	29° 5 59'23	44.15218 AU	asc. node	3419 Jul 12 04:02	9° 0 05'07	
	3411 Jul 20 18:17	0° 0		max. Earth dist.	3419 Jul 29 22:03	9° 0 32'33	42.34760 AU
conjunction	3411 Jul 22 07:40	0° 0 02'20	-2°-47'-48	conjunction	3419 Aug 01 06:43	9° 0 36'15	0°01'16
minimum elong	3411 Jul 22 07:44	0° 0 02'21	2°47'49	minimum elong	3419 Aug 01 06:43	9° 0 36'15	0°01'16
retrograde	3411 Nov 01 18:18	1° 0 41'10		behind sun begin	3419 Aug 01 00:11	9° 0 35'51	
opposition	3412 Jan 21 23:54	0° 0 37'37	-2°-45'-11	behind sun end	3419 Aug 01 13:14	9° 0 36'39	
min. Earth dist.	3412 Jan 23 18:21	0° 0 35'26	42.04736 AU	retrograde	3419 Nov 11 20:16	11° 0 19'49	
	3412 Feb 23 11:15	30° R 5		opposition	3420 Jan 31 09:07	10° 0 14'19	0°12'55
direct	3412 Apr 12 09:25	29° 5 33'31		min. Earth dist.	3420 Feb 02 12:14	10° 0 11'35	40.22785 AU
	3412 May 30 19:07	0° 0		direct	3420 Apr 21 17:06	9° 0 07'55	
max. Earth dist.	3412 Jul 20 19:07	1° 0 08'35	43.93964 AU	max. Earth dist.	3420 Jul 30 10:44	10° 0 47'35	42.11050 AU
conjunction	3412 Jul 22 18:37	1° 0 11'34	-2°-27'-34	conjunction	3420 Aug 01 19:54	10° 0 51'21	0°23'30
minimum elong	3412 Jul 22 18:41	1° 0 11'34	2°27'34	minimum elong	3420 Aug 01 19:53	10° 0 51'21	0°23'29
retrograde	3412 Nov 02 06:13	2° 0 50'57		retrograde	3420 Nov 12 07:38	12° 0 35'36	
opposition	3413 Jan 22 09:08	1° 0 47'12	-2°-23'-53	opposition	3421 Jan 31 20:34	11° 0 29'51	0°36'25
min. Earth dist.	3413 Jan 24 04:36	1° 0 44'57	41.83226 AU	min. Earth dist.	3421 Feb 02 23:24	11° 0 27'07	39.99025 AU
direct	3413 Apr 13 18:13	0° 0 42'51		direct	3421 Apr 23 05:40	10° 0 23'08	
max. Earth dist.	3413 Jul 22 04:05	2° 0 18'23	43.72309 AU	max. Earth dist.	3421 Jul 31 22:35	12° 0 03'27	41.87216 AU
conjunction	3413 Jul 24 05:40	2° 0 21'32	-2°-7'-4	conjunction	3421 Aug 03 09:24	12° 0 07'21	0°45'59
minimum elong	3413 Jul 24 05:43	2° 0 21'32	2°07'05	minimum elong	3421 Aug 03 09:23	12° 0 07'21	0°46'00
retrograde	3413 Nov 03 18:45	4° 0 01'27		retrograde	3421 Nov 13 20:23	13° 0 52'20	
opposition	3414 Jan 23 18:36	2° 0 57'30	-2°-2'-19	opposition	3422 Feb 02 08:32	12° 0 46'19	1°00'11
min. Earth dist.	3414 Jan 25 15:03	2° 0 55'12	41.61306 AU	min. Earth dist.	3422 Feb 04 13:02	12° 0 43'29	39.75147 AU
direct	3414 Apr 15 03:05	1° 0 52'54		direct	3422 Apr 24 16:10	11° 0 39'18	
max. Earth dist.	3414 Jul 23 14:03	3° 0 28'57	43.50215 AU	max. Earth dist.	3422 Aug 02 12:56	13° 0 20'25	41.63248 AU
conjunction	3414 Jul 25 17:15	3° 0 32'12	-1°-46'-19	conjunction	3422 Aug 04 23:32	13° 0 24'20	1°08'44
minimum elong	3414 Jul 25 17:18	3° 0 32'13	1°46'21	minimum elong	3422 Aug 04 23:30	13° 0 24'20	1°08'43
retrograde	3414 Nov 05 03:41	5° 0 12'42			3422 Oct 18 00:42	15° 0	
opposition	3415 Jan 25 04:21	4° 0 08'31	-1°-40'-28	retrograde	3422 Nov 15 10:39	15° 0 10'03	
min. Earth dist.	3415 Jan 27 02:49	4° 0 06'06	41.38965 AU		3422 Dec 14 03:36	15° R 0	
direct	3415 Apr 16 14:47	3° 0 03'39		opposition	3423 Feb 03 20:40	14° 0 03'47	1°24'13
max. Earth dist.	3415 Jul 25 01:10	4° 0 40'16	43.27728 AU	min. Earth dist.	3423 Feb 06 01:18	14° 0 00'56	39.51116 AU
conjunction	3415 Jul 27 05:04	4° 0 43'35	-1°-25'-19	direct	3423 Apr 26 02:23	12° 0 56'28	
minimum elong	3415 Jul 27 05:06	4° 0 43'35	1°25'21	max. Earth dist.	3423 Aug 04 01:17	14° 0 38'15	41.39096 AU
retrograde	3415 Nov 06 14:03	6° 0 24'39		conjunction	3423 Aug 06 13:56	14° 0 42'20	1°31'42
opposition	3416 Jan 26 14:18	5° 0 20'14	-1°-18'-21	minimum elong	3423 Aug 06 13:53	14° 0 42'20	1°31'43
min. Earth dist.	3416 Jan 28 13:00	5° 0 17'47	41.16253 AU		3423 Aug 17 13:29	15° 0	
direct	3416 Apr 17 01:13	4° 0 15'04		retrograde	3423 Nov 17 03:37	16° 0 28'50	
max. Earth dist.	3416 Jul 25 10:43	5° 0 52'11	43.04877 AU	opposition	3424 Feb 05 09:21	15° 0 22'18	1°48'30
conjunction	3416 Jul 27 16:52	5° 0 55'40	-1°-4'-4	min. Earth dist.	3424 Feb 07 15:21	15° 0 19'22	39.26891 AU
minimum elong	3416 Jul 27 16:54	5° 0 55'40	1°04'05		3424 Feb 22 17:30	15° R 0	
retrograde	3416 Nov 07 03:21	7° 0 37'20		direct	3424 Apr 26 11:52	14° 0 14'40	
opposition	3417 Jan 27 00:38	6° 0 32'39	0°-55'-56	max. Earth dist.	3424 Jun 28 00:03	15° 0	
min. Earth dist.	3417 Jan 29 01:17	6° 0 30'05	40.93225 AU		3424 Aug 04 15:34	15° 0 57'15	41.14689 AU
direct	3417 Apr 18 08:14	5° 0 27'11		conjunction	3424 Aug 07 04:45	16° 0 01'24	1°54'54

minimum elong	3424 Aug 07 04:42	16°01'24	1°54'54	min. Earth dist.	3433 Feb 19 11:12	27°05'234	36.98815 AU
retrograde	3424 Nov 17 19:29	17°04'481		direct	3433 May 09 00:51	26°04'453	
opposition	3425 Feb 05 22:30	16°041'52	2°13'02	max. Earth dist.	3433 Aug 17 16:40	28°035'15	38.85129 AU
min. Earth dist.	3425 Feb 08 05:43	16°038'51	39.02389 AU				
direct	3425 Apr 28 01:48	15°033'54		conjunction	3433 Aug 20 14:48	28°040'21	5°32'34
max. Earth dist.	3425 Aug 06 05:33	17°017'15	40.90000 AU	minimum elong	3433 Aug 20 14:37	28°040'20	5°32'34
					3433 Oct 09 19:23	0°00	
conjunction	3425 Aug 08 20:05	17°021'31	2°18'20	retrograde	3433 Dec 01 07:23	0°0035'37	
minimum elong	3425 Aug 08 20:01	17°021'30	2°18'20		3434 Jan 23 19:40	30°00	
retrograde	3425 Nov 19 12:31	19°009'35		opposition	3434 Feb 18 15:32	29°025'42	6°03'41
opposition	3426 Feb 07 11:50	18°002'28	2°37'49	min. Earth dist.	3434 Feb 21 05:48	29°022'05	36.73200 AU
min. Earth dist.	3426 Feb 09 19:33	17°059'24	38.77602 AU	direct	3434 May 10 15:42	28°014'07	
direct	3426 Apr 29 16:27	16°054'08			3434 Aug 16 07:51	0°00	
max. Earth dist.	3426 Aug 07 19:36	18°038'14	40.64991 AU	max. Earth dist.	3434 Aug 19 12:56	0°005'38	38.59390 AU
conjunction	3426 Aug 10 12:00	18°042'39	2°41'58	conjunction	3434 Aug 22 10:32	0°0010'44	5°57'30
minimum elong	3426 Aug 10 11:55	18°042'39	2°41'57	minimum elong	3434 Aug 22 10:21	0°0010'43	5°57'29
retrograde	3426 Nov 21 03:30	20°031'32		retrograde	3434 Dec 03 02:21	2°007'03	
opposition	3427 Feb 09 01:51	19°024'06	3°02'50	opposition	3435 Feb 20 09:15	0°0056'49	6°30'07
min. Earth dist.	3427 Feb 11 11:39	19°020'53	38.52516 AU	min. Earth dist.	3435 Feb 22 23:18	0°0053'11	36.47635 AU
direct	3427 May 01 06:27	18°015'23			3435 Apr 08 04:42	30°00	
max. Earth dist.	3427 Aug 09 11:31	20°000'19	40.39702 AU	direct	3435 May 12 08:19	29°044'51	
					3435 Jun 15 03:32	0°00	
conjunction	3427 Aug 12 04:13	20°004'48	3°05'49	max. Earth dist.	3435 Aug 21 07:21	1°0037'23	38.33673 AU
minimum elong	3427 Aug 12 04:07	20°004'47	3°05'49				
retrograde	3427 Nov 22 17:35	21°054'30		conjunction	3435 Aug 24 06:35	1°0042'39	6°22'30
opposition	3428 Feb 10 16:06	20°046'44	3°28'05	minimum elong	3435 Aug 24 06:23	1°0042'38	6°22'30
min. Earth dist.	3428 Feb 13 01:56	20°043'30	38.27176 AU	retrograde	3435 Dec 05 01:15	3°0040'05	
direct	3428 May 01 21:18	19°037'37		opposition	3436 Feb 22 03:33	2°0029'30	6°56'40
max. Earth dist.	3428 Aug 10 01:54	21°023'17	40.14174 AU	min. Earth dist.	3436 Feb 24 18:33	2°0025'48	36.22088 AU
				direct	3436 May 12 22:59	1°0017'09	
conjunction	3428 Aug 12 20:48	21°027'57	3°29'52	max. Earth dist.	3436 Aug 22 04:18	3°0010'52	38.07921 AU
minimum elong	3428 Aug 12 20:41	21°027'57	3°29'51				
retrograde	3428 Nov 23 11:07	23°018'31		conjunction	3436 Aug 25 03:32	3°0016'10	6°47'34
opposition	3429 Feb 11 06:49	22°010'22	3°53'33	minimum elong	3436 Aug 25 03:19	3°0016'09	6°47'34
min. Earth dist.	3429 Feb 13 18:13	22°007'02	38.01648 AU	retrograde	3436 Dec 05 22:36	5°0014'43	
direct	3429 May 03 09:05	21°000'51		opposition	3437 Feb 22 22:32	4°0003'47	7°23'18
max. Earth dist.	3429 Aug 11 19:07	22°047'27	39.88468 AU	min. Earth dist.	3437 Feb 25 14:23	4°0000'01	35.96491 AU
				direct	3437 May 14 16:24	2°0051'02	
conjunction	3429 Aug 14 13:55	22°052'08	3°54'06	max. Earth dist.	3437 Aug 24 00:41	4°0045'52	37.82106 AU
minimum elong	3429 Aug 14 13:48	22°052'08	3°54'06				
retrograde	3429 Nov 25 04:03	24°043'34		conjunction	3437 Aug 27 00:59	4°0051'18	7°12'41
opposition	3430 Feb 12 22:02	23°035'04	4°19'14	minimum elong	3437 Aug 27 00:44	4°0051'17	7°12'41
min. Earth dist.	3430 Feb 15 09:55	23°031'41	37.75973 AU	retrograde	3437 Dec 07 23:03	6°0050'59	
direct	3430 May 04 23:26	22°025'07		opposition	3438 Feb 24 18:05	5°0039'41	7°50'00
max. Earth dist.	3430 Aug 13 11:14	24°012'34	39.62650 AU	min. Earth dist.	3438 Feb 27 10:09	5°0035'53	35.70824 AU
				direct	3438 May 16 13:00	5°0026'30	
conjunction	3430 Aug 16 07:25	24°017'24	4°18'30	max. Earth dist.	3438 Aug 25 21:39	6°0022'27	37.56184 AU
minimum elong	3430 Aug 16 07:17	24°017'23	4°18'30				
retrograde	3430 Nov 26 23:46	26°009'44		conjunction	3438 Aug 28 23:14	6°0028'02	7°37'50
opposition	3431 Feb 14 13:32	25°000'51	4°45'06	minimum elong	3438 Aug 28 23:00	6°0028'01	7°37'51
min. Earth dist.	3431 Feb 17 01:53	24°057'26	37.50242 AU	retrograde	3438 Dec 09 22:34	8°0028'51	
direct	3431 May 06 14:11	23°050'29		opposition	3439 Feb 26 14:22	7°0017'10	8°16'44
max. Earth dist.	3431 Aug 15 04:38	25°038'53	39.36776 AU	min. Earth dist.	3439 Mar 01 08:05	7°0013'15	35.45073 AU
				direct	3439 May 18 09:35	6°0003'33	
conjunction	3431 Aug 18 01:29	25°043'48	4°43'04	max. Earth dist.	3439 Aug 27 20:28	8°0000'42	37.30198 AU
minimum elong	3431 Aug 18 01:19	25°043'47	4°43'04				
retrograde	3431 Nov 28 17:52	27°037'03		conjunction	3439 Aug 30 22:03	8°0006'21	8°03'00
opposition	3432 Feb 16 05:47	26°027'49	5°11'09	minimum elong	3439 Aug 30 21:47	8°0006'20	8°02'59
min. Earth dist.	3432 Feb 18 19:13	26°024'19	37.24501 AU	retrograde	3439 Dec 11 21:03	10°0008'19	
direct	3432 May 07 07:28	25°017'03		opposition	3440 Feb 28 11:13	8°0056'15	8°43'30
max. Earth dist.	3432 Aug 15 23:02	27°006'27	39.10930 AU	min. Earth dist.	3440 Mar 02 04:29	8°0052'19	35.19280 AU
				direct	3440 May 19 07:04	7°0042'09	
conjunction	3432 Aug 18 19:47	27°011'25	5°07'45	max. Earth dist.	3440 Aug 28 18:04	9°0040'24	37.04176 AU
minimum elong	3432 Aug 18 19:37	27°011'24	5°07'45				
retrograde	3432 Nov 29 12:51	29°005'39		conjunction	3440 Aug 31 21:16	9°0046'14	8°28'08
opposition	3433 Feb 16 22:23	27°056'04	5°37'21	minimum elong	3440 Aug 31 21:00	9°0046'12	8°28'08

retrograde	3440 Dec 12 19:29	11° \mathring{M} 49'23		direct	3449 Jun 03 23:28	23° \mathring{M} 45'10	
opposition	3441 Mar 01 08:46	10° \mathring{M} 36'53	9°10'13	max. Earth dist.	3449 Sep 14 19:47	25° \mathring{M} 55'39	34.78300 AU
min. Earth dist.	3441 Mar 04 03:29	10° \mathring{M} 32'50	34.93498 AU				
direct	3441 May 21 02:23	9° \mathring{M} 22'18		conjunction	3449 Sep 17 23:17	26° \mathring{M} 02'02	12°06'12
max. Earth dist.	3441 Aug 30 18:51	11° \mathring{M} 21'51	36.78180 AU	minimum elong	3449 Sep 17 22:55	26° \mathring{M} 02'00	12°06'11
				retrograde	3449 Dec 30 04:19	28° \mathring{M} 16'54	
conjunction	3441 Sep 02 21:26	11° \mathring{M} 27'41	8°53'12	opposition	3450 Mar 17 18:46	27° \mathring{M} 00'41	13°02'03
minimum elong	3441 Sep 02 21:08	11° \mathring{M} 27'39	8°53'11	min. Earth dist.	3450 Mar 20 13:46	26° \mathring{M} 56'23	32.71216 AU
retrograde	3441 Dec 14 18:03	13° \mathring{M} 32'01		direct	3450 Jun 06 01:08	25° \mathring{M} 41'53	
opposition	3442 Mar 03 06:48	12° \mathring{M} 19'05	9°36'53	max. Earth dist.	3450 Sep 17 03:31	27° \mathring{M} 53'55	34.54542 AU
min. Earth dist.	3442 Mar 06 01:26	12° \mathring{M} 15'01	34.67778 AU				
direct	3442 May 22 23:14	11° \mathring{M} 04'00		conjunction	3450 Sep 20 06:18	28° \mathring{M} 00'18	12°28'41
max. Earth dist.	3442 Sep 01 18:11	13° \mathring{M} 04'43	36.52281 AU	minimum elong	3450 Sep 20 05:56	28° \mathring{M} 00'16	12°28'41
					3450 Nov 29 23:27	0° \mathring{M}	
conjunction	3442 Sep 04 22:06	13° \mathring{M} 10'43	9°18'10	retrograde	3451 Jan 01 11:05	0° \mathring{M} 16'35	
minimum elong	3442 Sep 04 21:48	13° \mathring{M} 10'41	9°18'10		3451 Feb 03 13:01	30° \mathring{R} \mathring{M}	
retrograde	3442 Dec 16 20:22	15° \mathring{M} 16'16		opposition	3451 Mar 20 00:08	28° \mathring{M} 59'57	13°25'57
opposition	3443 Mar 05 05:37	14° \mathring{M} 02'53	10°03'26	min. Earth dist.	3451 Mar 22 19:24	28° \mathring{M} 55'36	32.47882 AU
min. Earth dist.	3443 Mar 08 00:38	13° \mathring{M} 58'46	34.42212 AU	direct	3451 Jun 08 05:36	27° \mathring{M} 40'42	
direct	3443 May 24 19:03	12° \mathring{M} 47'18		max. Earth dist.	3451 Sep 19 10:40	29° \mathring{M} 54'10	34.31043 AU
max. Earth dist.	3443 Sep 03 20:01	14° \mathring{M} 49'22	36.26543 AU				
				conjunction	3451 Sep 22 13:47	0° \mathring{M} 00'39	12°50'39
conjunction	3443 Sep 06 23:26	14° \mathring{M} 55'21	9°43'00	minimum elong	3451 Sep 22 13:24	0° \mathring{M} 00'37	12°50'38
minimum elong	3443 Sep 06 23:07	14° \mathring{M} 55'20	9°42'59		3451 Sep 22 06:18	0° \mathring{M}	
retrograde	3443 Dec 18 21:54	17° \mathring{M} 02'09		retrograde	3452 Jan 03 20:49	2° \mathring{M} 18'20	
opposition	3444 Mar 06 05:15	15° \mathring{M} 48'20	10°29'50	opposition	3452 Mar 21 06:11	1° \mathring{M} 01'17	13°49'16
min. Earth dist.	3444 Mar 09 00:33	15° \mathring{M} 44'10	34.16855 AU	min. Earth dist.	3452 Mar 24 00:42	0° \mathring{M} 56'57	32.24826 AU
direct	3444 May 25 18:18	14° \mathring{M} 32'16			3452 May 04 23:45	30° \mathring{R} \mathring{M}	
max. Earth dist.	3444 Sep 04 21:58	16° \mathring{M} 35'38	36.01065 AU	direct	3452 Jun 09 10:53	29° \mathring{M} 41'33	
					3452 Jul 14 11:18	0° \mathring{M}	
conjunction	3444 Sep 08 01:24	16° \mathring{M} 41'42	10°07'37	max. Earth dist.	3452 Sep 20 19:24	1° \mathring{M} 56'32	34.07824 AU
minimum elong	3444 Sep 08 01:05	16° \mathring{M} 41'40	10°07'38				
retrograde	3444 Dec 20 02:51	18° \mathring{M} 49'45		conjunction	3452 Sep 23 22:19	2° \mathring{M} 03'03	13°12'01
opposition	3445 Mar 08 05:23	17° \mathring{M} 35'30	10°56'02	minimum elong	3452 Sep 23 21:57	2° \mathring{M} 03'01	13°12'02
min. Earth dist.	3445 Mar 10 23:56	17° \mathring{M} 31'22	33.91799 AU	retrograde	3453 Jan 05 05:49	4° \mathring{M} 22'08	
direct	3445 May 27 19:08	16° \mathring{M} 18'57		opposition	3453 Mar 23 13:05	3° \mathring{M} 04'40	14°11'56
max. Earth dist.	3445 Sep 07 00:33	18° \mathring{M} 23'40	35.75885 AU	min. Earth dist.	3453 Mar 26 08:22	3° \mathring{M} 00'15	32.02081 AU
				direct	3453 Jun 11 16:41	1° \mathring{M} 44'27	
conjunction	3445 Sep 10 04:15	18° \mathring{M} 29'49	10°32'00	max. Earth dist.	3453 Sep 23 05:29	4° \mathring{M} 00'58	33.84966 AU
minimum elong	3445 Sep 10 03:54	18° \mathring{M} 29'47	10°32'00				
retrograde	3445 Dec 22 06:43	20° \mathring{M} 39'11		conjunction	3453 Sep 26 07:35	4° \mathring{M} 07'29	13°32'44
opposition	3446 Mar 10 06:33	19° \mathring{M} 24'30	11°21'57	minimum elong	3453 Sep 26 07:12	4° \mathring{M} 07'27	13°32'44
min. Earth dist.	3446 Mar 13 01:56	19° \mathring{M} 20'17	33.67065 AU	retrograde	3454 Jan 07 17:27	6° \mathring{M} 27'56	
direct	3446 May 29 19:20	18° \mathring{M} 07'29		opposition	3454 Mar 25 20:48	5° \mathring{M} 10'03	14°33'54
max. Earth dist.	3446 Sep 09 05:02	20° \mathring{M} 13'41	35.51043 AU	min. Earth dist.	3454 Mar 28 14:46	5° \mathring{M} 05'42	31.79718 AU
				direct	3454 Jun 14 01:45	3° \mathring{M} 49'21	
conjunction	3446 Sep 12 07:50	20° \mathring{M} 19'49	10°56'06	max. Earth dist.	3454 Sep 25 15:18	6° \mathring{M} 07'19	33.62513 AU
minimum elong	3446 Sep 12 07:29	20° \mathring{M} 19'47	10°56'07				
retrograde	3446 Dec 24 10:44	22° \mathring{M} 30'30		conjunction	3454 Sep 28 17:34	6° \mathring{M} 13'54	13°52'43
opposition	3447 Mar 12 08:17	21° \mathring{M} 15'27	11°47'34	minimum elong	3454 Sep 28 17:12	6° \mathring{M} 13'52	13°52'44
min. Earth dist.	3447 Mar 15 02:36	21° \mathring{M} 11'16	33.42669 AU	retrograde	3455 Jan 10 04:33	8° \mathring{M} 35'45	
direct	3447 May 31 21:21	19° \mathring{M} 57'59		opposition	3455 Mar 28 05:26	7° \mathring{M} 17'25	14°55'02
max. Earth dist.	3447 Sep 11 08:28	22° \mathring{M} 05'32	35.26519 AU	min. Earth dist.	3455 Mar 30 23:54	7° \mathring{M} 13'01	31.57812 AU
				direct	3455 Jun 16 09:03	5° \mathring{M} 56'15	
conjunction	3447 Sep 14 12:09	22° \mathring{M} 11'48	11°19'52	max. Earth dist.	3455 Sep 28 03:56	8° \mathring{M} 15'49	33.40576 AU
minimum elong	3447 Sep 14 11:48	22° \mathring{M} 11'47	11°19'51				
retrograde	3447 Dec 26 16:05	24° \mathring{M} 23'53		conjunction	3455 Oct 01 04:19	8° \mathring{M} 22'19	14°11'52
opposition	3448 Mar 13 11:00	23° \mathring{M} 08'26	12°12'49	minimum elong	3455 Oct 01 03:56	8° \mathring{M} 22'17	14°11'52
min. Earth dist.	3448 Mar 16 06:06	23° \mathring{M} 04'10	33.18593 AU	retrograde	3456 Jan 12 14:51	10° \mathring{M} 45'31	
direct	3448 Jun 01 21:24	21° \mathring{M} 50'32		opposition	3456 Mar 29 14:54	9° \mathring{M} 26'46	15°15'16
max. Earth dist.	3448 Sep 12 14:51	23° \mathring{M} 59'38	35.02285 AU	min. Earth dist.	3456 Apr 01 07:37	9° \mathring{M} 22'27	31.36453 AU
				direct	3456 Jun 17 18:48	8° \mathring{M} 05'09	
conjunction	3448 Sep 15 17:17	24° \mathring{M} 05'52	11°43'14	max. Earth dist.	3456 Sep 29 15:15	10° \mathring{M} 26'08	33.19237 AU
minimum elong	3448 Sep 15 16:55	24° \mathring{M} 05'50	11°43'15				
retrograde	3448 Dec 27 21:03	26° \mathring{M} 19'20		conjunction	3456 Oct 02 15:37	10° \mathring{M} 32'41	14°30'07
opposition	3449 Mar 15 14:31	25° \mathring{M} 03'31	12°37'40	minimum elong	3456 Oct 02 15:15	10° \mathring{M} 32'40	14°30'07
min. Earth dist.	3449 Mar 18 09:09	24° \mathring{M} 59'15	32.94779 AU	retrograde	3457 Jan 14 03:08	12° \mathring{M} 57'16	

opposition	3457 Apr 01 01:13	11°♂38'07	15°34'30			3465 May 02 09:57	30°♂♂	
min. Earth dist.	3457 Apr 03 17:32	11°♂33'47	31.15734 AU	direct		3465 Jul 08 13:45	28°♂♂56'06	
direct	3457 Jun 20 02:34	10°♂♂16'02				3465 Sep 10 08:50	0°♂♂	
max. Earth dist.	3457 Oct 02 06:02	12°♂♂38'41	32.98576 AU	max. Earth dist.		3465 Oct 21 22:30	1°♂♂29'59	31.59960 AU
conjunction	3457 Oct 05 03:58	12°♂♂45'04	14°47'22	conjunction		3465 Oct 24 09:03	1°♂♂35'41	16°20'46
minimum elong	3457 Oct 05 03:36	12°♂♂45'02	14°47'21	minimum elong		3465 Oct 24 08:52	1°♂♂35'40	16°20'45
retrograde	3458 Jan 16 14:59	15°♂♂11'00		retrograde		3466 Feb 05 03:13	4°♂♂11'12	
opposition	3458 Apr 03 12:23	13°♂♂51'28	15°52'38	opposition		3466 Apr 22 12:31	2°♂♂49'12	17°28'58
min. Earth dist.	3458 Apr 06 03:19	13°♂♂47'12	30.95706 AU	min. Earth dist.		3466 Apr 24 17:17	2°♂♂45'31	29.61620 AU
direct	3458 Jun 22 12:06	12°♂♂28'59		direct		3466 Jul 11 06:33	1°♂♂24'06	
max. Earth dist.	3458 Oct 04 19:30	14°♂♂53'04	32.78661 AU	max. Earth dist.		3466 Oct 24 20:16	3°♂♂59'16	31.46072 AU
conjunction	3458 Oct 07 16:57	14°♂♂59'29	15°03'33	conjunction		3466 Oct 27 03:38	4°♂♂04'41	16°25'52
minimum elong	3458 Oct 07 16:37	14°♂♂59'27	15°03'33	minimum elong		3466 Oct 27 03:31	4°♂♂04'40	16°25'52
retrograde	3459 Jan 19 04:55	17°♂♂26'45		retrograde		3467 Feb 07 21:00	6°♂♂41'06	
opposition	3459 Apr 06 00:27	16°♂♂06'53	16°09'35	opposition		3467 Apr 25 06:59	5°♂♂18'49	17°33'50
min. Earth dist.	3459 Apr 08 14:03	16°♂♂02'41	30.76435 AU	min. Earth dist.		3467 Apr 27 09:34	5°♂♂15'16	29.48251 AU
direct	3459 Jun 24 22:00	14°♂♂44'01		direct		3467 Jul 14 01:26	3°♂♂53'28	
max. Earth dist.	3459 Oct 07 11:35	17°♂♂09'43	32.59504 AU	max. Earth dist.		3467 Oct 27 16:15	6°♂♂29'36	31.33097 AU
conjunction	3459 Oct 10 06:43	17°♂♂15'58	15°18'33	conjunction		3467 Oct 29 22:20	6°♂♂34'56	16°29'17
minimum elong	3459 Oct 10 06:24	17°♂♂15'56	15°18'33	minimum elong		3467 Oct 29 22:13	6°♂♂34'55	16°29'17
retrograde	3460 Jan 21 17:53	19°♂♂44'35		retrograde		3468 Feb 10 16:23	9°♂♂12'11	
opposition	3460 Apr 07 13:29	18°♂♂24'22	16°25'16	opposition		3468 Apr 27 01:57	7°♂♂49'39	17°36'50
min. Earth dist.	3460 Apr 10 02:18	18°♂♂20'13	30.57897 AU	min. Earth dist.		3468 Apr 29 02:30	7°♂♂46'14	29.35817 AU
direct	3460 Jun 26 09:54	17°♂♂01'09		direct		3468 Jul 15 19:26	6°♂♂24'02	
max. Earth dist.	3460 Oct 09 03:07	19°♂♂28'20	32.41106 AU	max. Earth dist.		3468 Oct 29 15:19	9°♂♂01'20	31.21115 AU
conjunction	3460 Oct 11 21:15	19°♂♂34'32	15°32'21	conjunction		3468 Oct 31 17:42	9°♂♂06'20	16°30'56
minimum elong	3460 Oct 11 20:57	19°♂♂34'30	15°32'22	minimum elong		3468 Oct 31 17:39	9°♂♂06'19	16°30'57
retrograde	3461 Jan 23 10:30	22°♂♂04'27		retrograde		3469 Feb 12 10:28	11°♂♂44'18	
opposition	3461 Apr 10 03:05	20°♂♂43'55	16°39'37	opposition		3469 Apr 29 21:24	10°♂♂21'33	17°37'55
min. Earth dist.	3461 Apr 12 14:01	20°♂♂39'53	30.40089 AU	min. Earth dist.		3469 May 01 19:58	10°♂♂18'16	29.24380 AU
direct	3461 Jun 28 22:29	19°♂♂20'22		direct		3469 Jul 18 14:26	8°♂♂55'45	
max. Earth dist.	3461 Oct 11 20:10	21°♂♂49'02	32.23421 AU	max. Earth dist.		3469 Nov 01 12:39	11°♂♂33'55	31.10218 AU
conjunction	3461 Oct 14 12:45	21°♂♂55'08	15°44'52	conjunction		3469 Nov 03 13:16	11°♂♂38'45	16°30'47
minimum elong	3461 Oct 14 12:28	21°♂♂55'06	15°44'51	minimum elong		3469 Nov 03 13:13	11°♂♂38'45	16°30'47
retrograde	3462 Jan 26 02:01	24°♂♂26'18		retrograde		3470 Feb 15 07:14	14°♂♂17'24	
opposition	3462 Apr 12 17:54	23°♂♂05'28	16°52'35	opposition		3470 May 02 17:25	12°♂♂54'28	17°37'01
min. Earth dist.	3462 Apr 15 04:35	23°♂♂01'26	30.22970 AU	min. Earth dist.		3470 May 04 12:48	12°♂♂51'24	29.14037 AU
direct	3462 Jul 01 11:42	21°♂♂41'36		direct		3470 Jul 21 09:13	11°♂♂28'30	
max. Earth dist.	3462 Oct 14 14:00	24°♂♂11'41	32.06454 AU	max. Earth dist.		3470 Nov 04 12:21	14°♂♂07'40	31.00463 AU
conjunction	3462 Oct 17 04:49	24°♂♂17'40	15°56'01	conjunction		3470 Nov 06 09:12	14°♂♂12'09	16°28'45
minimum elong	3462 Oct 17 04:34	24°♂♂17'39	15°56'02	minimum elong		3470 Nov 06 09:14	14°♂♂12'09	16°28'45
retrograde	3463 Jan 28 20:08	26°♂♂50'02		retrograde		3470 Nov 26 15:12	15°♂♂	
opposition	3463 Apr 15 09:24	25°♂♂28'54	17°04'04	opposition		3471 Feb 18 01:19	16°♂♂51'24	
min. Earth dist.	3463 Apr 17 17:52	25°♂♂25'00	30.06540 AU	opposition		3471 May 05 14:03	15°♂♂28'20	17°34'05
direct	3463 Jul 04 04:39	24°♂♂04'42		min. Earth dist.		3471 May 07 07:30	15°♂♂25'24	29.04822 AU
max. Earth dist.	3463 Oct 17 07:52	26°♂♂36'07	31.90196 AU	direct		3471 May 22 14:13	15°♂♂♂♂	
conjunction	3463 Oct 19 21:39	26°♂♂42'02	16°05'46	direct		3471 Jul 24 05:13	14°♂♂02'16	
minimum elong	3463 Oct 19 21:24	26°♂♂42'01	16°05'46	max. Earth dist.		3471 Sep 21 22:42	15°♂♂	
retrograde	3464 Jan 31 13:26	29°♂♂15'32				3471 Nov 07 10:53	16°♂♂42'12	30.91903 AU
opposition	3464 Apr 17 01:47	27°♂♂54'06	17°14'00	conjunction		3471 Nov 09 05:19	16°♂♂46'27	16°24'49
min. Earth dist.	3464 Apr 19 09:53	27°♂♂50'12	29.90821 AU	minimum elong		3471 Nov 09 05:20	16°♂♂46'28	16°24'49
direct	3464 Jul 05 19:53	26°♂♂29'35		retrograde		3472 Feb 20 22:38	19°♂♂26'13	
max. Earth dist.	3464 Oct 19 03:43	29°♂♂02'21	31.74693 AU	opposition		3472 May 07 10:48	18°♂♂03'04	17°29'04
conjunction	3464 Oct 21 15:03	29°♂♂08'05	16°14'02	min. Earth dist.		3472 May 09 00:36	18°♂♂00'24	28.96765 AU
minimum elong	3464 Oct 21 14:52	29°♂♂08'04	16°14'03	direct		3472 Jul 26 02:05	16°♂♂36'57	
	3464 Nov 13 09:26	0°♂♂		max. Earth dist.		3472 Nov 09 10:43	19°♂♂17'40	30.84509 AU
retrograde	3465 Feb 02 07:44	1°♂♂42'38		conjunction		3472 Nov 11 01:44	19°♂♂21'36	16°18'58
opposition	3465 Apr 19 18:49	0°♂♂20'54	17°22'20	minimum elong		3472 Nov 11 01:50	19°♂♂21'36	16°18'58
min. Earth dist.	3465 Apr 22 00:35	0°♂♂17'10	29.75827 AU	retrograde		3473 Feb 22 18:18	22°♂♂01'48	

opposition	3473 May 10 08:10	20° ℳ 38'36	17°22'00	opposition	3481 May 31 15:31	11° ♂ 28'31	15°13'55
min. Earth dist.	3473 May 11 20:24	20° ℳ 36'02	28.89826 AU	min. Earth dist.	3481 Jun 01 04:42	11° ♂ 27'36	28.72183 AU
direct	3473 Jul 28 21:27	19° ℳ 12'28		direct	3481 Aug 19 12:06	10° ♂ 02'59	
max. Earth dist.	3473 Nov 12 10:11	21° ℳ 53'49	30.78259 AU				
conjunction	3473 Nov 13 22:17	21° ℳ 57'27	16°11'13	conjunction	3481 Dec 04 16:44	12° ♂ 46'11	14°03'37
minimum elong	3473 Nov 13 22:24	21° ℳ 57'28	16°11'13	minimum elong	3481 Dec 04 17:05	12° ♂ 46'13	14°03'38
retrograde	3474 Feb 25 15:47	24° ℳ 37'59		max. Earth dist.	3481 Dec 04 05:23	12° ♂ 45'03	30.66968 AU
opposition	3474 May 13 05:40	23° ℳ 14'46	17°12'52	retrograde	3482 Mar 18 08:18	15° ♂ 25'22	
min. Earth dist.	3474 May 14 14:16	23° ℳ 12'27	28.83974 AU	opposition	3482 Jun 03 13:00	14° ♂ 02'22	14°49'34
direct	3474 Jul 31 20:41	21° ℳ 48'39		min. Earth dist.	3482 Jun 03 23:46	14° ♂ 01'37	28.74873 AU
max. Earth dist.	3474 Nov 15 09:41	24° ℳ 30'29	30.73102 AU	direct	3482 Aug 22 10:29	12° ♂ 37'00	
conjunction	3474 Nov 16 19:01	24° ℳ 33'51	16°01'34	conjunction	3482 Dec 07 11:33	15° ♂ 19'29	13°40'05
minimum elong	3474 Nov 16 19:12	24° ℳ 33'52	16°01'34	minimum elong	3482 Dec 07 11:55	15° ♂ 19'31	13°40'05
retrograde	3475 Feb 28 12:30	27° ℳ 14'37		max. Earth dist.	3482 Dec 07 02:47	15° ♂ 18'36	30.70632 AU
opposition	3475 May 16 03:40	25° ℳ 51'23	17°01'42	retrograde	3483 Mar 21 03:13	17° ♂ 58'03	
min. Earth dist.	3475 May 17 10:31	25° ℳ 49'12	28.79184 AU	opposition	3483 Jun 06 10:02	16° ♂ 35'12	14°23'33
direct	3475 Aug 03 18:06	24° ℳ 25'19		min. Earth dist.	3483 Jun 06 16:25	16° ♂ 34'45	28.78796 AU
max. Earth dist.	3475 Nov 18 09:41	27° ℳ 07'34	30.69032 AU	direct	3483 Aug 25 08:10	15° ♂ 10'02	
conjunction	3475 Nov 19 15:41	27° ℳ 10'36	15°50'03	conjunction	3483 Dec 10 05:57	17° ♂ 51'43	13°15'03
minimum elong	3475 Nov 19 15:52	27° ℳ 10'37	15°50'03	minimum elong	3483 Dec 10 06:19	17° ♂ 51'45	13°15'03
retrograde	3476 Mar 02 09:36	29° ℳ 51'29		max. Earth dist.	3483 Dec 10 01:26	17° ♂ 51'16	30.75533 AU
opposition	3476 May 18 01:42	28° ℳ 28'15	16°48'32	retrograde	3484 Mar 22 20:06	20° ♂ 29'38	
min. Earth dist.	3476 May 19 05:07	28° ℳ 26'19	28.75420 AU	opposition	3484 Jun 08 06:49	19° ♂ 06'57	13°55'58
direct	3476 Aug 05 17:23	27° ℳ 02'14		min. Earth dist.	3484 Jun 08 10:54	19° ♂ 06'40	28.83938 AU
max. Earth dist.	3476 Nov 20 08:35	29° ℳ 44'41	30.66004 AU	direct	3484 Aug 27 04:04	17° ♂ 42'03	
conjunction	3476 Nov 21 12:26	29° ℳ 47'29	15°36'42	conjunction	3484 Dec 11 23:50	20° ♂ 22'52	12°48'36
minimum elong	3476 Nov 21 12:40	29° ℳ 47'31	15°36'41	minimum elong	3484 Dec 12 00:14	20° ♂ 22'54	12°48'35
retrograde	3476 Nov 26 16:11	0° ♂		max. Earth dist.	3484 Dec 11 22:12	20° ♂ 22'42	30.81660 AU
opposition	3477 Mar 05 07:13	2° ♂ 28'22		retrograde	3485 Mar 25 13:16	23° ♂ 00'04	
min. Earth dist.	3477 May 20 23:45	1° ♂ 05'08	16°33'23	opposition	3485 Jun 11 02:54	21° ♂ 37'36	13°26'55
direct	3477 May 22 01:07	1° ♂ 03'21	28.72682 AU	min. Earth dist.	3485 Jun 11 02:44	21° ♂ 37'37	28.90263 AU
max. Earth dist.	3477 Jul 03 16:16	30° ♂		direct	3485 Aug 30 01:54	20° ♂ 12'59	
conjunction	3477 Aug 08 15:24	29° ℳ 39'12		conjunction	3485 Dec 14 17:18	22° ♂ 52'53	12°20'51
minimum elong	3477 Sep 12 17:20	0° ♂		minimum elong	3485 Dec 14 17:42	22° ♂ 52'56	12°20'52
retrograde	3477 Nov 23 09:04	2° ♂ 21'51	30.64030 AU	max. Earth dist.	3485 Dec 14 19:11	22° ♂ 53'05	30.88940 AU
opposition	3477 Nov 24 09:11	2° ♂ 24'17	15°21'32	retrograde	3486 Mar 28 05:34	25° ♂ 29'20	
min. Earth dist.	3477 Nov 24 09:26	2° ♂ 24'19	15°21'32	opposition	3486 Jun 13 22:54	24° ♂ 07'05	12°56'30
direct	3478 Mar 08 03:38	5° ♂ 05'02		min. Earth dist.	3486 Jun 13 20:29	24° ♂ 07'15	28.97723 AU
max. Earth dist.	3478 May 23 21:58	3° ♂ 41'50	16°16'19	direct	3486 Sep 01 21:08	22° ♂ 42'48	
conjunction	3478 May 24 20:22	3° ♂ 40'15	28.70954 AU	conjunction	3486 Dec 17 10:03	25° ♂ 21'43	11°51'54
minimum elong	3478 Aug 11 16:02	2° ♂ 15'58		minimum elong	3486 Dec 17 10:26	25° ♂ 21'45	11°51'54
retrograde	3478 Nov 26 07:26	4° ♂ 58'32	30.63103 AU	max. Earth dist.	3486 Dec 17 15:07	25° ♂ 22'13	30.97329 AU
opposition	3478 Nov 27 05:28	5° ♂ 00'46	15°04'36	retrograde	3487 Mar 30 22:06	27° ♂ 57'19	
min. Earth dist.	3478 Nov 27 05:45	5° ♂ 00'47	15°04'36	opposition	3487 Jun 16 18:17	26° ♂ 35'20	12°24'52
direct	3479 Mar 10 23:58	7° ♂ 41'16		min. Earth dist.	3487 Jun 16 12:10	26° ♂ 35'45	29.06238 AU
max. Earth dist.	3479 May 26 20:04	6° ♂ 18'06	15°57'20	direct	3487 Sep 04 17:46	25° ♂ 11'23	
conjunction	3479 May 27 15:35	6° ♂ 16'43	28.70276 AU	conjunction	3487 Dec 20 02:20	27° ♂ 49'15	11°21'52
minimum elong	3479 Aug 14 13:56	4° ♂ 52'19		minimum elong	3487 Dec 20 02:43	27° ♂ 49'17	11°21'53
retrograde	3479 Nov 29 07:50	7° ♂ 34'54	30.63259 AU	max. Earth dist.	3487 Dec 20 10:01	27° ♂ 50'00	31.06731 AU
opposition	3479 Nov 30 01:41	7° ♂ 36'42	14°45'56	retrograde	3488 Feb 24 05:42	0° ♂	
min. Earth dist.	3479 Nov 30 02:00	7° ♂ 36'44	14°45'57	opposition	3488 Apr 01 14:27	0° ♂ 23'59	
direct	3480 Mar 12 19:15	10° ♂ 16'51		minimum elong	3488 May 10 09:13	30° ♂	
max. Earth dist.	3480 May 28 17:54	8° ♂ 53'43	15°36'31	retrograde	3488 Jun 18 13:06	29° ♂ 02'15	11°52'07
conjunction	3480 May 29 10:50	8° ♂ 52'32	28.70664 AU	opposition	3488 Jun 18 04:38	29° ♂ 02'50	29.15759 AU
minimum elong	3480 Aug 16 13:44	7° ♂ 28'03		min. Earth dist.	3488 Sep 06 12:25	27° ♂ 38'39	
retrograde				direct	3488 Dec 15 03:35	0° ♂	
opposition	3480 Dec 01 21:22	10° ♂ 11'53	14°25'36	conjunction	3488 Dec 21 18:08	0° ♂ 15'25	10°50'51
min. Earth dist.	3480 Dec 01 21:42	10° ♂ 11'55	14°25'35	minimum elong	3488 Dec 21 18:31	0° ♂ 15'28	10°50'50
direct	3480 Dec 01 05:37	10° ♂ 10'18	30.64531 AU	max. Earth dist.	3488 Dec 22 05:13	0° ♂ 16'30	31.17102 AU
retrograde	3481 Mar 15 15:34	12° ♂ 51'36		retrograde	3489 Apr 04 06:04	2° ♂ 49'13	

opposition	3489 Jun 21 07:26	1°☾27'45	11°18'22	conjunction	3498 Jan 11 07:03	20°☾54'22	5°43'29
min. Earth dist.	3489 Jun 20 20:08	1°☾28'31	29.26199 AU	minimum elong	3498 Jan 11 07:17	20°☾54'24	5°43'30
direct	3489 Sep 09 09:27	0°☾04'31		max. Earth dist.	3498 Jan 12 18:03	20°☾57'35	32.49273 AU
				retrograde	3498 Apr 24 11:15	23°☾18'08	
conjunction	3489 Dec 24 09:05	2°☾40'07	10°18'57	min. Earth dist.	3498 Jul 11 09:56	22°☾01'32	30.59480 AU
minimum elong	3489 Dec 24 09:28	2°☾40'09	10°18'58	opposition	3498 Jul 12 21:38	21°☾59'13	5°47'01
max. Earth dist.	3489 Dec 24 22:05	2°☾41'23	31.28361 AU	direct	3498 Oct 01 08:56	20°☾39'19	
retrograde	3490 Apr 06 21:26	5°☾12'55					
min. Earth dist.	3490 Jun 23 10:57	3°☾52'41	29.37534 AU	conjunction	3499 Jan 13 15:25	23°☾03'03	5°07'49
opposition	3490 Jun 24 01:14	3°☾51'43	10°43'44	minimum elong	3499 Jan 13 15:37	23°☾03'04	5°07'49
direct	3490 Sep 12 03:21	2°☾28'50		max. Earth dist.	3499 Jan 15 04:12	23°☾06'24	32.68198 AU
				retrograde	3499 Apr 26 20:26	25°☾25'40	
conjunction	3490 Dec 26 23:37	5°☾03'14	9°46'17	min. Earth dist.	3499 Jul 13 18:31	24°☾09'34	30.78568 AU
minimum elong	3490 Dec 26 23:59	5°☾03'16	9°46'17	opposition	3499 Jul 15 08:53	24°☾07'06	5°08'53
max. Earth dist.	3490 Dec 27 16:11	5°☾04'49	31.40484 AU	direct	3499 Oct 03 19:07	22°☾47'37	
retrograde	3491 Apr 09 10:43	7°☾34'59					
opposition	3491 Jun 26 18:21	6°☾14'03	10°08'19	conjunction	3500 Jan 15 23:13	25°☾10'01	4°32'09
min. Earth dist.	3491 Jun 26 01:59	6°☾15'09	29.49713 AU	minimum elong	3500 Jan 15 23:24	25°☾10'02	4°32'09
direct	3491 Sep 14 22:48	4°☾51'31		max. Earth dist.	3500 Jan 17 15:06	25°☾13'37	32.87817 AU
				retrograde	3500 Apr 29 03:49	27°☾31'29	
conjunction	3491 Dec 29 13:10	7°☾24'38	9°12'56	min. Earth dist.	3500 Jul 16 03:37	26°☾15'49	30.98309 AU
minimum elong	3491 Dec 29 13:32	7°☾24'40	9°12'56	opposition	3500 Jul 17 19:29	26°☾13'16	4°30'49
max. Earth dist.	3491 Dec 30 07:13	7°☾26'22	31.53436 AU	direct	3500 Oct 06 08:09	24°☾54'13	
retrograde	3492 Apr 11 01:28	9°☾55'18					
opposition	3492 Jun 28 10:41	8°☾34'38	9°32'15	conjunction	3501 Jan 18 06:13	27°☾15'18	3°56'33
min. Earth dist.	3492 Jun 27 14:55	8°☾35'57	29.62736 AU	minimum elong	3501 Jan 18 06:22	27°☾15'18	3°56'32
direct	3492 Sep 16 17:02	7°☾12'25		max. Earth dist.	3501 Jan 19 22:59	27°☾18'57	33.08028 AU
				retrograde	3501 May 01 12:40	29°☾35'36	
conjunction	3492 Dec 31 02:10	9°☾44'15	8°39'00	min. Earth dist.	3501 Jul 18 10:33	28°☾20'26	31.18643 AU
minimum elong	3492 Dec 31 02:30	9°☾44'17	8°38'59	opposition	3501 Jul 20 05:17	28°☾17'44	3°52'54
max. Earth dist.	3492 Dec 31 23:50	9°☾46'18	31.67211 AU	direct	3501 Oct 08 19:02	26°☾59'06	
retrograde	3493 Apr 13 12:12	12°☾13'47					
min. Earth dist.	3493 Jun 30 04:57	10°☾54'47	29.76603 AU	conjunction	3502 Jan 20 12:44	29°☾18'51	3°21'06
opposition	3493 Jul 01 02:21	10°☾53'22	8°55'36	minimum elong	3502 Jan 20 12:52	29°☾18'52	3°21'06
direct	3493 Sep 19 10:26	9°☾31'30		max. Earth dist.	3502 Jan 22 08:21	29°☾22'44	33.28765 AU
					3502 Feb 09 02:46	0°≈	
conjunction	3494 Jan 02 14:14	12°☾01'59	8°04'34	retrograde	3502 May 03 17:45	1°≈38'00	
minimum elong	3494 Jan 02 14:33	12°☾02'01	8°04'34	min. Earth dist.	3502 Jul 20 19:06	0°≈23'13	31.39489 AU
max. Earth dist.	3494 Jan 03 13:47	12°☾04'12	31.81845 AU	opposition	3502 Jul 22 14:38	0°≈20'28	3°15'11
retrograde	3494 Apr 15 23:05	14°☾30'22			3502 Aug 05 06:43	30°☾☾	
opposition	3494 Jul 03 17:17	13°☾10'13	8°18'29	direct	3502 Oct 11 05:33	29°☾02'16	
min. Earth dist.	3494 Jul 02 15:59	13°☾11'53	29.91367 AU		3502 Dec 13 00:28	0°≈	
direct	3494 Sep 22 02:53	11°☾48'42					
				conjunction	3503 Jan 22 18:25	1°≈20'41	2°45'51
conjunction	3495 Jan 05 01:30	14°☾17'50	7°29'43	minimum elong	3503 Jan 22 18:32	1°≈20'42	2°45'50
minimum elong	3495 Jan 05 01:47	14°☾17'51	7°29'42	max. Earth dist.	3503 Jan 24 14:52	1°≈24'36	33.49966 AU
max. Earth dist.	3495 Jan 06 04:36	14°☾20'22	31.97360 AU	retrograde	3503 May 05 22:41	3°≈38'40	
retrograde	3495 Apr 18 08:30	16°☾45'04		min. Earth dist.	3503 Jul 23 00:45	2°≈24'23	31.60786 AU
min. Earth dist.	3495 Jul 05 04:22	15°☾26'58	30.07054 AU	opposition	3503 Jul 24 23:04	2°≈21'28	2°37'44
opposition	3495 Jul 06 07:36	15°☾25'11	7°40'58	direct	3503 Oct 13 16:01	1°≈03'39	
direct	3495 Sep 24 17:16	14°☾04'02					
				conjunction	3504 Jan 24 23:34	3°≈20'46	2°10'51
conjunction	3496 Jan 07 12:06	16°☾31'48	6°54'31	minimum elong	3504 Jan 24 23:39	3°≈20'46	2°10'52
minimum elong	3496 Jan 07 12:23	16°☾31'50	6°54'32	max. Earth dist.	3504 Jan 26 22:11	3°≈24'50	33.71563 AU
max. Earth dist.	3496 Jan 08 17:32	16°☾34'33	32.13794 AU	retrograde	3504 May 07 02:09	5°≈37'35	
retrograde	3496 Apr 19 17:57	18°☾57'52		min. Earth dist.	3504 Jul 24 07:40	4°≈23'38	31.82499 AU
opposition	3496 Jul 07 20:49	17°☾38'18	7°03'09	opposition	3504 Jul 26 06:46	4°≈20'42	2°00'37
min. Earth dist.	3496 Jul 06 14:00	17°☾40'19	30.23658 AU	direct	3504 Oct 15 00:35	3°≈03'16	
direct	3496 Sep 26 07:45	16°☾17'33					
				conjunction	3505 Jan 26 04:00	5°≈19'03	1°36'10
conjunction	3497 Jan 08 21:58	18°☾43'58	6°19'05	minimum elong	3505 Jan 26 04:04	5°≈19'04	1°36'09
minimum elong	3497 Jan 08 22:13	18°☾43'59	6°19'05	max. Earth dist.	3505 Jan 28 03:56	5°≈23'13	33.93556 AU
max. Earth dist.	3497 Jan 10 06:02	18°☾46'56	32.31108 AU	retrograde	3505 May 09 05:00	7°≈34'44	
retrograde	3497 Apr 22 02:49	21°☾08'53		min. Earth dist.	3505 Jul 26 12:27	6°≈21'12	32.04614 AU
min. Earth dist.	3497 Jul 09 00:36	19°☾51'47	30.41160 AU	opposition	3505 Jul 28 13:47	6°≈18'08	1°23'53
opposition	3497 Jul 10 09:37	19°☾49'38	6°25'09	direct	3505 Oct 17 09:13	5°≈01'04	
direct	3497 Sep 28 20:09	18°☾29'18					

conjunction	3506 Jan 28 07:30	7°≈15'33	1°01'49	retrograde	3513 May 23 14:26	22°≈13'52	
minimum elong	3506 Jan 28 07:32	7°≈15'33	1°01'50	min. Earth dist.	3513 Aug 10 07:48	21°≈03'36	33.97566 AU
max. Earth dist.	3506 Jan 30 08:55	7°≈19'48	34.15937 AU	opposition	3513 Aug 12 21:43	20°≈59'56	-3°-11'-45
retrograde	3506 May 11 08:23	9°≈30'06		direct	3513 Nov 01 20:35	19°≈46'05	
min. Earth dist.	3506 Jul 28 17:15	8°≈16'56	32.27183 AU				
opposition	3506 Jul 30 20:13	8°≈13'48	0°47'34	conjunction	3514 Feb 11 14:08	21°≈51'12	-3°-16'-9
direct	3506 Oct 19 15:02	6°≈57'06		minimum elong	3514 Feb 11 14:01	21°≈51'12	3°16'09
				max. Earth dist.	3514 Feb 14 04:02	21°≈56'13	36.10085 AU
conjunction	3507 Jan 30 10:31	9°≈10'18	0°27'53	retrograde	3514 May 25 12:35	23°≈57'34	
minimum elong	3507 Jan 30 10:32	9°≈10'18	0°27'52	min. Earth dist.	3514 Aug 12 08:28	22°≈47'39	34.23049 AU
max. Earth dist.	3507 Feb 01 14:21	9°≈14'43	34.38768 AU	opposition	3514 Aug 14 23:03	22°≈43'58	-3°-43'-30
retrograde	3507 May 13 10:46	11°≈23'43		direct	3514 Nov 03 22:10	21°≈30'30	
min. Earth dist.	3507 Jul 30 21:14	10°≈10'56	32.50221 AU				
opposition	3507 Aug 02 01:43	10°≈07'43	0°11'43	conjunction	3515 Feb 13 12:34	23°≈34'33	-3°-45'-54
direct	3507 Oct 21 21:14	8°≈51'24		minimum elong	3515 Feb 13 12:26	23°≈34'33	3°45'55
desc. node	3507 Dec 01 03:10	9°≈15'17		max. Earth dist.	3515 Feb 16 02:24	23°≈39'31	36.35496 AU
				retrograde	3515 May 27 12:56	25°≈39'58	
conjunction	3508 Feb 01 12:43	11°≈03'21	0°-5'-43	min. Earth dist.	3515 Aug 14 07:42	24°≈30'26	34.48613 AU
minimum elong	3508 Feb 01 12:42	11°≈03'21	0°05'43	opposition	3515 Aug 16 23:41	24°≈26'42	-4°-14'-35
behind sun begin	3508 Feb 01 06:35	11°≈02'51		direct	3515 Nov 05 21:39	23°≈13'36	
behind sun end	3508 Feb 01 18:49	11°≈03'50					
max. Earth dist.	3508 Feb 03 17:26	11°≈07'48	34.62063 AU	conjunction	3516 Feb 15 10:39	25°≈16'35	-4°-15'-4
retrograde	3508 May 14 14:17	13°≈15'41		minimum elong	3516 Feb 15 10:31	25°≈16'35	4°15'04
min. Earth dist.	3508 Jul 31 23:29	12°≈03'22	32.73764 AU	max. Earth dist.	3516 Feb 18 02:10	25°≈21'39	36.60939 AU
opposition	3508 Aug 03 06:36	12°≈00'00	0°-23'-37	retrograde	3516 May 28 11:18	27°≈21'03	
direct	3508 Oct 23 00:51	10°≈44'04		min. Earth dist.	3516 Aug 15 08:09	26°≈11'47	34.74184 AU
				opposition	3516 Aug 17 23:54	26°≈08'04	-4°-45'00
conjunction	3509 Feb 02 14:23	12°≈54'49	0°-38'-44	direct	3516 Nov 06 22:30	24°≈55'19	
minimum elong	3509 Feb 02 14:22	12°≈54'49	0°38'46				
max. Earth dist.	3509 Feb 04 21:52	12°≈59'28	34.85833 AU	conjunction	3517 Feb 16 07:59	26°≈57'16	-4°-43'-36
	3509 Apr 26 07:01	15°≈		minimum elong	3517 Feb 16 07:50	26°≈57'15	4°43'38
retrograde	3509 May 16 15:11	15°≈06'06		max. Earth dist.	3517 Feb 18 23:07	27°≈02'15	36.86376 AU
	3509 Jun 06 06:34	15°≈		retrograde	3517 May 30 10:19	29°≈00'47	
min. Earth dist.	3509 Aug 03 02:56	13°≈54'09	32.97780 AU	min. Earth dist.	3517 Aug 17 05:57	27°≈51'52	34.99763 AU
opposition	3509 Aug 05 10:53	13°≈50'45	0°-58'-26	opposition	3517 Aug 19 23:27	27°≈48'04	-5°-14'-44
direct	3509 Oct 25 07:02	12°≈35'14		direct	3517 Nov 08 21:56	26°≈35'38	
conjunction	3510 Feb 04 15:24	14°≈44'48	-1°-11'-18	conjunction	3518 Feb 18 04:55	28°≈36'33	-5°-11'-32
minimum elong	3510 Feb 04 15:21	14°≈44'48	1°11'18	minimum elong	3518 Feb 18 04:46	28°≈36'32	5°11'33
max. Earth dist.	3510 Feb 06 23:29	14°≈49'28	35.10054 AU	max. Earth dist.	3518 Feb 20 21:31	28°≈41'37	37.11817 AU
	3510 Feb 12 06:04	15°≈			3518 Apr 07 23:35	0°≈	
retrograde	3510 May 18 17:18	16°≈55'03		retrograde	3518 Jun 01 05:02	0°≈39'07	
min. Earth dist.	3510 Aug 05 03:49	15°≈43'35	33.22245 AU		3518 Jul 27 22:57	30°≈	
opposition	3510 Aug 07 14:28	15°≈40'03	-1°-32'-41	min. Earth dist.	3518 Aug 19 05:18	29°≈30'26	35.25387 AU
	3510 Sep 05 18:03	15°≈		opposition	3518 Aug 21 22:34	29°≈26'40	-5°-43'-47
direct	3510 Oct 27 11:55	14°≈24'57		direct	3518 Nov 10 22:46	28°≈14'33	
	3510 Dec 15 23:23	15°≈			3519 Feb 12 07:59	0°≈	
conjunction	3511 Feb 06 15:50	16°≈33'23	-1°-43'-21	conjunction	3519 Feb 20 01:14	0°≈14'25	-5°-38'-50
minimum elong	3511 Feb 06 15:46	16°≈33'23	1°43'22	minimum elong	3519 Feb 20 01:04	0°≈14'24	5°38'51
max. Earth dist.	3511 Feb 09 02:16	16°≈38'13	35.34662 AU	max. Earth dist.	3519 Feb 22 18:22	0°≈19'30	37.37318 AU
retrograde	3511 May 20 17:09	18°≈42'38		retrograde	3519 Jun 02 22:51	2°≈16'04	
min. Earth dist.	3511 Aug 07 06:25	17°≈31'32	33.47084 AU	min. Earth dist.	3519 Aug 21 02:11	1°≈07'43	35.51086 AU
opposition	3511 Aug 09 17:34	17°≈28'00	-2°-6'-20	opposition	3519 Aug 23 20:56	1°≈03'52	-6°-12'-9
direct	3511 Oct 29 15:42	16°≈13'19			3519 Oct 19 15:59	30°≈	
				direct	3519 Nov 12 23:59	29°≈52'04	
					3519 Dec 06 18:25	0°≈	
conjunction	3512 Feb 08 15:49	18°≈20'37	-2°-14'-51				
minimum elong	3512 Feb 08 15:44	18°≈20'37	2°14'51				
max. Earth dist.	3512 Feb 11 03:09	18°≈25'30	35.59594 AU	conjunction	3520 Feb 21 21:03	1°≈50'56	-6°-5'-29
retrograde	3512 May 21 15:05	20°≈28'53		minimum elong	3520 Feb 21 20:53	1°≈50'55	6°05'30
min. Earth dist.	3512 Aug 08 06:41	19°≈18'15	33.72211 AU	max. Earth dist.	3520 Feb 24 14:54	1°≈56'02	37.62900 AU
opposition	3512 Aug 10 19:45	19°≈14'36	-2°-39'-22	retrograde	3520 Jun 03 18:21	3°≈51'42	
direct	3512 Oct 30 19:34	18°≈00'21		min. Earth dist.	3520 Aug 21 23:15	2°≈43'37	35.76915 AU
				opposition	3520 Aug 24 18:47	2°≈39'46	-6°-39'-48
conjunction	3513 Feb 09 15:13	20°≈06'33	-2°-45'-47	direct	3520 Nov 13 21:48	1°≈28'16	
minimum elong	3513 Feb 09 15:07	20°≈06'33	2°45'49				
max. Earth dist.	3513 Feb 12 03:38	20°≈11'29	35.84754 AU	conjunction	3521 Feb 22 16:31	3°≈26'10	-6°-31'-29

minimum elong	3521 Feb 22 16:20	3° 1 26'09	6°31'30	min. Earth dist.	3529 Sep 05 03:59	16° 1 19'11	38.09994 AU
max. Earth dist.	3521 Feb 25 11:52	3° 1 31'21	37.88619 AU	opposition	3529 Sep 08 03:22	16° 1 15'16	-10°-17'-26
retrograde	3521 Jun 05 12:31	5° 1 26'04		direct	3529 Nov 28 05:23	15° 1 06'41	
min. Earth dist.	3521 Aug 23 20:07	4° 1 18'18	36.02869 AU				
opposition	3521 Aug 26 16:13	4° 1 14'25	-7°-6'-45	conjunction	3530 Mar 08 05:07	16° 1 57'05	-9°-56'-46
direct	3521 Nov 15 20:23	3° 1 03'15		minimum elong	3530 Mar 08 04:54	16° 1 57'04	9°56'47
				max. Earth dist.	3530 Mar 11 03:32	17° 1 02'11	40.19468 AU
conjunction	3522 Feb 24 11:16	5° 1 00'13	-6°-56'-50	retrograde	3530 Jun 19 06:10	18° 1 50'15	
minimum elong	3522 Feb 24 11:05	5° 1 00'12	6°56'51	min. Earth dist.	3530 Sep 06 22:39	17° 1 44'54	38.35075 AU
max. Earth dist.	3522 Feb 27 06:33	5° 1 05'21	38.14455 AU	opposition	3530 Sep 09 20:59	17° 1 41'04	-10°-38'-19
retrograde	3522 Jun 07 09:43	6° 1 59'18		direct	3530 Nov 29 22:19	16° 1 32'45	
min. Earth dist.	3522 Aug 25 15:29	5° 1 51'52	36.28948 AU				
opposition	3522 Aug 28 13:11	5° 1 47'55	-7°-32'-59	conjunction	3531 Mar 09 20:42	18° 1 22'22	-10°-16'-30
direct	3522 Nov 17 15:14	4° 1 37'05		minimum elong	3531 Mar 09 20:29	18° 1 22'21	10°16'30
				max. Earth dist.	3531 Mar 12 18:44	18° 1 27'25	40.44248 AU
conjunction	3523 Feb 26 05:52	6° 1 33'10	-7°-21'-32	retrograde	3531 Jun 20 19:16	20° 1 14'49	
minimum elong	3523 Feb 26 05:40	6° 1 33'09	7°21'33	min. Earth dist.	3531 Sep 08 14:28	19° 1 09'44	38.59988 AU
max. Earth dist.	3523 Mar 01 02:59	6° 1 38'24	38.40382 AU	opposition	3531 Sep 11 13:47	19° 1 05'52	-10°-58'-32
retrograde	3523 Jun 09 05:01	8° 1 31'27		direct	3531 Dec 01 17:29	17° 1 57'47	
min. Earth dist.	3523 Aug 27 12:14	7° 1 24'16	36.55094 AU				
opposition	3523 Aug 30 09:34	7° 1 20'22	-7°-58'-31	conjunction	3532 Mar 10 11:48	19° 1 46'39	-10°-35'-38
direct	3523 Nov 19 11:15	6° 1 09'53		minimum elong	3532 Mar 10 11:36	19° 1 46'39	10°35'40
				max. Earth dist.	3532 Mar 13 10:04	19° 1 51'41	40.68881 AU
conjunction	3524 Feb 27 23:57	8° 1 05'05	-7°-45'-35	retrograde	3532 Jun 21 08:40	21° 1 38'25	
minimum elong	3524 Feb 27 23:46	8° 1 05'05	7°45'36	min. Earth dist.	3532 Sep 09 07:23	20° 1 33'32	38.84799 AU
max. Earth dist.	3524 Mar 01 20:47	8° 1 10'16	38.66350 AU	opposition	3532 Sep 12 06:30	20° 1 29'40	-11°-18'-7
retrograde	3524 Jun 09 23:43	10° 1 02'36		direct	3532 Dec 02 11:52	19° 1 21'51	
min. Earth dist.	3524 Aug 28 06:35	8° 1 55'48	36.81251 AU				
opposition	3524 Aug 31 05:30	8° 1 51'49	-8°-23'-21	conjunction	3533 Mar 12 02:34	21° 1 09'59	-10°-54'-10
direct	3524 Nov 20 06:50	7° 1 41'41		minimum elong	3533 Mar 12 02:21	21° 1 09'58	10°54'11
				max. Earth dist.	3533 Mar 15 01:40	21° 1 15'03	40.93436 AU
conjunction	3525 Feb 28 17:35	9° 1 36'04	-8°-9'00	retrograde	3533 Jun 22 21:28	23° 1 01'05	
minimum elong	3525 Feb 28 17:22	9° 1 36'03	8°09'01	min. Earth dist.	3533 Sep 10 23:24	21° 1 56'25	39.09524 AU
max. Earth dist.	3525 Mar 03 15:23	9° 1 41'17	38.92282 AU	opposition	3533 Sep 13 22:44	21° 1 52'34	-11°-37'-3
retrograde	3525 Jun 11 16:10	11° 1 32'49		direct	3533 Dec 04 06:14	20° 1 45'00	
min. Earth dist.	3525 Aug 30 02:45	10° 1 26'17	37.07360 AU				
opposition	3525 Sep 02 01:13	10° 1 22'21	-8°-47'-30	conjunction	3534 Mar 13 16:57	22° 1 32'25	-11°-12'-6
direct	3525 Nov 22 04:01	9° 1 12'33		minimum elong	3534 Mar 13 16:44	22° 1 32'24	11°12'08
				max. Earth dist.	3534 Mar 16 15:31	22° 1 37'25	41.17919 AU
conjunction	3526 Mar 02 11:03	11° 1 06'07	-8°-31'-47	retrograde	3534 Jun 24 13:31	24° 1 22'53	
minimum elong	3526 Mar 02 10:51	11° 1 06'06	8°31'48	min. Earth dist.	3534 Sep 12 14:22	23° 1 18'29	39.34193 AU
max. Earth dist.	3526 Mar 05 09:09	11° 1 11'20	39.18136 AU	opposition	3534 Sep 15 14:34	23° 1 14'36	-11°-55'-21
retrograde	3526 Jun 13 07:46	13° 1 02'08		direct	3534 Dec 05 20:45	22° 1 07'17	
min. Earth dist.	3526 Aug 31 21:22	11° 1 55'54	37.33342 AU				
opposition	3526 Sep 03 20:20	11° 1 51'58	-9°-10'-58	conjunction	3535 Mar 15 07:09	23° 1 54'02	-11°-29'-26
direct	3526 Nov 24 01:04	10° 1 42'30		minimum elong	3535 Mar 15 06:57	23° 1 54'01	11°29'27
				max. Earth dist.	3535 Mar 18 07:01	23° 1 59'05	41.42331 AU
conjunction	3527 Mar 04 04:02	12° 1 35'15	-8°-53'-56	retrograde	3535 Jun 26 04:46	25° 1 43'52	
minimum elong	3527 Mar 04 03:49	12° 1 35'14	8°53'57	min. Earth dist.	3535 Sep 14 06:39	24° 1 39'39	39.58760 AU
max. Earth dist.	3527 Mar 07 01:46	12° 1 40'25	39.43819 AU	opposition	3535 Sep 17 06:06	24° 1 35'49	-12°-13'-1
retrograde	3527 Jun 15 02:00	14° 1 30'34		direct	3535 Dec 07 11:29	23° 1 28'47	
min. Earth dist.	3527 Sep 02 15:57	13° 1 24'37	37.59143 AU				
opposition	3527 Sep 05 15:09	13° 1 20'40	-9°-33'-46	conjunction	3536 Mar 15 20:57	25° 1 14'52	-11°-46'-11
direct	3527 Nov 25 18:52	12° 1 11'32		minimum elong	3536 Mar 15 20:45	25° 1 14'51	11°46'13
				max. Earth dist.	3536 Mar 18 20:01	25° 1 19'50	41.66634 AU
conjunction	3528 Mar 04 20:53	14° 1 03'29	-9°-15'-29	retrograde	3536 Jun 26 20:56	27° 1 04'06	
minimum elong	3528 Mar 04 20:41	14° 1 03'28	9°15'30	min. Earth dist.	3536 Sep 14 20:39	26° 1 00'09	39.83196 AU
max. Earth dist.	3528 Mar 07 19:27	14° 1 08'40	39.69285 AU	opposition	3536 Sep 17 21:07	25° 1 56'17	-12°-30'-5
retrograde	3528 Jun 15 18:30	15° 1 58'06		direct	3536 Dec 08 00:22	24° 1 49'31	
min. Earth dist.	3528 Sep 03 10:57	14° 1 52'20	37.84689 AU				
opposition	3528 Sep 06 09:25	14° 1 48'27	-9°-55'-56	conjunction	3537 Mar 17 10:31	26° 1 34'58	-12°-2'-22
direct	3528 Nov 26 13:46	13° 1 39'36		minimum elong	3537 Mar 17 10:20	26° 1 34'57	12°02'23
				max. Earth dist.	3537 Mar 20 10:08	26° 1 39'57	41.90780 AU
conjunction	3529 Mar 06 13:13	15° 1 30'47	-9°-36'-25	retrograde	3537 Jun 28 10:10	28° 1 33'37	
minimum elong	3529 Mar 06 13:00	15° 1 30'46	9°36'25	min. Earth dist.	3537 Sep 16 12:36	27° 1 19'50	40.07459 AU
max. Earth dist.	3529 Mar 09 10:36	15° 1 35'51	39.94498 AU	opposition	3537 Sep 19 12:08	27° 1 16'02	-12°-46'-32
retrograde	3529 Jun 17 13:30	17° 1 24'40		direct	3537 Dec 09 15:09	26° 1 09'33	

conjunction	3538 Mar 18 23:51	27° ✕ 54'22	-12°-18'00	conjunction	3546 Mar 29 01:13	8° Υ 03'48	-14°-4'-30
minimum elong	3538 Mar 18 23:39	27° ✕ 54'21	12°18'01	minimum elong	3546 Mar 29 01:04	8° Υ 03'48	14°04'30
max. Earth dist.	3538 Mar 21 23:32	27° ✕ 59'20	42.14728 AU	max. Earth dist.	3546 Mar 31 21:47	8° Υ 08'22	43.94935 AU
retrograde	3538 Jun 29 20:42	29° ✕ 42'26		retrograde	3546 Jul 09 22:33	9° Υ 47'33	
min. Earth dist.	3538 Sep 18 02:58	28° ✕ 38'54	40.31471 AU	min. Earth dist.	3546 Sep 28 14:46	8° Υ 45'21	42.12038 AU
opposition	3538 Sep 21 02:39	28° ✕ 35'06	-13°-2'-25	opposition	3546 Oct 01 12:08	8° Υ 41'46	-14°-50'-8
direct	3538 Dec 11 08:26	27° ✕ 28'52		direct	3546 Dec 21 19:11	7° Υ 37'16	
conjunction	3539 Mar 20 12:57	29° ✕ 13'05	-12°-33'-5	conjunction	3547 Mar 30 12:19	9° Υ 16'56	-14°-15'-33
minimum elong	3539 Mar 20 12:46	29° ✕ 13'04	12°33'05	minimum elong	3547 Mar 30 12:10	9° Υ 16'56	14°15'34
max. Earth dist.	3539 Mar 23 11:39	29° ✕ 17'57	42.38391 AU	max. Earth dist.	3547 Apr 02 09:40	9° Υ 21'31	44.16366 AU
	3539 Apr 18 22:27	0° Υ		retrograde	3547 Jul 11 10:37	11° Υ 00'12	
retrograde	3539 Jul 01 09:57	1° Υ 00'35		min. Earth dist.	3547 Sep 30 03:54	9° Υ 58'08	42.33537 AU
	3539 Sep 17 13:00	30° R ✕		opposition	3547 Oct 02 23:55	9° Υ 54'39	-15°-1'-14
min. Earth dist.	3539 Sep 19 17:28	29° ✕ 57'14	40.55183 AU	direct	3547 Dec 23 06:13	8° Υ 50'22	
opposition	3539 Sep 22 16:50	29° ✕ 53'29	-13°-17'-44				
direct	3539 Dec 12 23:02	28° ✕ 47'29		conjunction	3548 Mar 30 23:07	10° Υ 29'33	-14°-26'-7
	3540 Mar 01 20:39	0° Υ		minimum elong	3548 Mar 30 22:58	10° Υ 29'33	14°26'07
conjunction	3540 Mar 21 01:59	0° Υ 31'06	-12°-47'-39	max. Earth dist.	3548 Apr 02 19:43	10° Υ 34'04	44.37607 AU
minimum elong	3540 Mar 21 01:47	0° Υ 31'06	12°47'40	retrograde	3548 Jul 11 21:21	12° Υ 12'22	
max. Earth dist.	3540 Mar 24 01:09	0° Υ 35'59	42.61723 AU	min. Earth dist.	3548 Sep 30 14:44	11° Υ 10'32	42.54817 AU
retrograde	3540 Jul 01 22:12	2° Υ 18'03		opposition	3548 Oct 03 11:29	11° Υ 07'01	-15°-11'-50
min. Earth dist.	3540 Sep 20 08:42	1° Υ 14'51	40.78523 AU	direct	3548 Dec 23 16:42	10° Υ 02'58	
opposition	3540 Sep 23 06:51	1° Υ 11'09	-13°-32'-31				
direct	3540 Dec 13 14:09	0° Υ 05'24		conjunction	3549 Apr 01 09:31	11° Υ 41'42	-14°-36'-13
conjunction	3541 Mar 22 14:29	1° Υ 48'24	-13°-1'-43	minimum elong	3549 Apr 01 09:23	11° Υ 41'42	14°36'15
minimum elong	3541 Mar 22 14:19	1° Υ 48'24	13°01'43	max. Earth dist.	3549 Apr 04 05:54	11° Υ 46'11	44.58603 AU
max. Earth dist.	3541 Mar 25 12:12	1° Υ 53'09	42.84683 AU	retrograde	3549 Jul 13 07:25	13° Υ 24'05	
retrograde	3541 Jul 03 12:46	3° Υ 34'47		min. Earth dist.	3549 Oct 02 03:19	12° Υ 22'24	42.75840 AU
min. Earth dist.	3541 Sep 21 21:54	2° Υ 31'47	41.01488 AU	opposition	3549 Oct 04 23:01	12° Υ 18'57	-15°-21'-56
opposition	3541 Sep 24 20:34	2° Υ 28'06	-13°-46'-47	direct	3549 Dec 25 04:00	11° Υ 15'08	
direct	3541 Dec 15 02:08	1° Υ 22'33		conjunction	3550 Apr 02 20:04	12° Υ 53'25	-14°-45'-51
conjunction	3542 Mar 24 02:52	3° Υ 04'58	-13°-15'-16	minimum elong	3550 Apr 02 19:57	12° Υ 53'24	14°45'52
minimum elong	3542 Mar 24 02:41	3° Υ 04'57	13°15'17	max. Earth dist.	3550 Apr 05 16:32	12° Υ 57'53	44.79323 AU
max. Earth dist.	3542 Mar 27 00:56	3° Υ 09'42	43.07271 AU	retrograde	3550 Jul 14 15:44	14° Υ 35'21	
retrograde	3542 Jul 05 01:40	4° Υ 50'47		min. Earth dist.	3550 Oct 03 14:56	13° Υ 33'51	42.96532 AU
min. Earth dist.	3542 Sep 23 12:45	3° Υ 47'52	41.24099 AU	opposition	3550 Oct 06 10:04	13° Υ 30'26	-15°-31'-35
opposition	3542 Sep 26 09:56	3° Υ 44'16	-14°00'-30	direct	3550 Dec 26 17:18	12° Υ 26'51	
direct	3542 Dec 16 14:56	2° Υ 38'55		conjunction	3551 Apr 04 06:19	14° Υ 04'41	-14°-55'-3
conjunction	3543 Mar 25 14:56	4° Υ 20'45	-13°-28'-20	minimum elong	3551 Apr 04 06:11	14° Υ 04'40	14°55'05
minimum elong	3543 Mar 25 14:47	4° Υ 20'44	13°28'21	max. Earth dist.	3551 Apr 07 01:12	14° Υ 09'01	44.99685 AU
max. Earth dist.	3543 Mar 28 12:22	4° Υ 25'25	43.29542 AU	retrograde	3551 Jul 16 02:53	15° Υ 46'13	
retrograde	3543 Jul 06 12:22	6° Υ 06'00		min. Earth dist.	3551 Oct 05 02:17	14° Υ 44'53	43.16843 AU
min. Earth dist.	3543 Sep 25 01:16	5° Υ 03'17	41.46403 AU	opposition	3551 Oct 07 21:02	14° Υ 41'30	-15°-40'-47
opposition	3543 Sep 27 22:52	4° Υ 59'40	-14°-13'-42	direct	3551 Dec 28 04:26	13° Υ 38'07	
direct	3543 Dec 18 04:21	3° Υ 54'31		conjunction	3552 Apr 04 16:30	15° Υ 15'30	-15°-3'-50
conjunction	3544 Mar 26 02:34	5° Υ 35'47	-13°-40'-53	minimum elong	3552 Apr 04 16:24	15° Υ 15'29	15°03'51
minimum elong	3544 Mar 26 02:24	5° Υ 35'46	13°40'54	max. Earth dist.	3552 Apr 07 11:39	15° Υ 19'50	45.19626 AU
max. Earth dist.	3544 Mar 28 23:30	5° Υ 40'24	43.51532 AU	retrograde	3552 Jul 16 14:18	16° Υ 56'37	
retrograde	3544 Jul 06 23:09	7° Υ 20'31		min. Earth dist.	3552 Oct 05 14:46	15° Υ 55'22	43.36694 AU
min. Earth dist.	3544 Sep 25 14:31	6° Υ 17'56	41.68474 AU	opposition	3552 Oct 08 07:49	15° Υ 52'05	-15°-49'-33
opposition	3544 Sep 28 11:35	6° Υ 14'21	-14°-26'-23	direct	3552 Dec 28 15:13	14° Υ 48'53	
direct	3544 Dec 18 18:13	5° Υ 09'24		conjunction	3553 Apr 06 02:31	16° Υ 25'49	-15°-12'-13
conjunction	3545 Mar 27 14:08	6° Υ 50'06	-13°-52'-57	minimum elong	3553 Apr 06 02:24	16° Υ 25'49	15°12'15
minimum elong	3545 Mar 27 13:59	6° Υ 50'06	13°52'58	max. Earth dist.	3553 Apr 08 19:57	16° Υ 30'02	45.39115 AU
max. Earth dist.	3545 Mar 30 11:51	6° Υ 54'46	43.73324 AU	retrograde	3553 Jul 18 02:59	18° Υ 06'30	
retrograde	3545 Jul 08 08:46	8° Υ 34'20		min. Earth dist.	3553 Oct 07 01:09	17° Υ 05'25	43.56078 AU
min. Earth dist.	3545 Sep 27 03:16	7° Υ 31'55	41.90342 AU	opposition	3553 Oct 09 18:21	17° Υ 02'08	-15°-57'-54
opposition	3545 Sep 30 00:00	7° Υ 28'21	-14°-38'-31	direct	3553 Dec 29 23:06	15° Υ 59'06	
direct	3545 Dec 20 09:00	6° Υ 23'38		conjunction	3554 Apr 07 12:13	17° Υ 35'35	-15°-20'-12
				minimum elong	3554 Apr 07 12:08	17° Υ 35'35	15°20'13
				max. Earth dist.	3554 Apr 10 05:05	17° Υ 39'44	45.58133 AU

retrograde	3554 Jul 19 11:57	19°♊15'49		direct	3563 Jan 09 16:54	26°♊06'20	
min. Earth dist.	3554 Oct 08 13:19	18°♊14'47	43.75006 AU				
opposition	3554 Oct 11 04:46	18°♊11'36	-16°-5'-51	conjunction	3563 Apr 17 19:16	27°♊39'18	-16°-14'-8
direct	3554 Dec 31 09:27	17°♊08'43		minimum elong	3563 Apr 17 19:13	27°♊39'17	16°14'08
				max. Earth dist.	3563 Apr 20 06:41	27°♊42'58	47.14664 AU
conjunction	3555 Apr 08 21:53	18°♊44'45	-15°-27'-48	retrograde	3563 Jul 29 16:37	29°♊16'08	
minimum elong	3555 Apr 08 21:47	18°♊44'44	15°27'49	min. Earth dist.	3563 Oct 19 04:48	28°♊16'09	45.30971 AU
max. Earth dist.	3555 Apr 11 14:25	18°♊48'52	45.76730 AU	opposition	3563 Oct 21 15:24	28°♊13'16	-16°-58'-47
retrograde	3555 Jul 20 17:47	20°♊24'31		direct	3564 Jan 10 23:34	27°♊11'50	
min. Earth dist.	3555 Oct 09 23:30	19°♊23'36	43.93522 AU				
opposition	3555 Oct 12 14:36	19°♊20'26	-16°-13'-23	conjunction	3564 Apr 18 03:25	28°♊44'28	-16°-18'-15
direct	3556 Jan 01 21:57	18°♊17'41		minimum elong	3564 Apr 18 03:23	28°♊44'28	16°18'17
				max. Earth dist.	3564 Apr 20 14:24	28°♊48'06	47.30367 AU
conjunction	3556 Apr 09 07:06	19°♊53'17	-15°-34'-59		3564 Jun 15 19:49	0°♈	
minimum elong	3556 Apr 09 07:02	19°♊53'17	15°35'00	retrograde	3564 Jul 30 01:53	0°♈21'00	
max. Earth dist.	3556 Apr 11 22:13	19°♊57'18	45.94952 AU		3564 Sep 13 02:48	30°♈♊	
retrograde	3556 Jul 21 02:26	21°♊32'38		min. Earth dist.	3564 Oct 19 15:25	29°♊21'04	45.46506 AU
min. Earth dist.	3556 Oct 10 09:42	20°♊31'48	44.11711 AU	opposition	3564 Oct 21 23:52	29°♊18'18	-17°-2'-45
opposition	3556 Oct 13 00:27	20°♊28'40	-16°-20'-30	direct	3565 Jan 11 06:38	28°♊17'01	
direct	3557 Jan 02 08:48	19°♊26'04					
				conjunction	3565 Apr 19 11:24	29°♊49'20	-16°-22'-3
conjunction	3557 Apr 10 16:08	21°♊01'13	-15°-41'-46	minimum elong	3565 Apr 19 11:23	29°♊49'20	16°22'03
minimum elong	3557 Apr 10 16:03	21°♊01'13	15°41'47	max. Earth dist.	3565 Apr 21 21:24	29°♊52'54	47.45588 AU
max. Earth dist.	3557 Apr 13 07:51	21°♊05'15	46.12874 AU		3565 Apr 26 17:19	0°♈	
retrograde	3557 Jul 22 10:32	22°♊40'10		retrograde	3565 Jul 31 08:29	1°♈25'32	
min. Earth dist.	3557 Oct 11 20:32	21°♊39'24	44.29603 AU	min. Earth dist.	3565 Oct 20 23:50	0°♈25'43	45.61528 AU
opposition	3557 Oct 14 10:06	21°♊36'20	-16°-27'-12	opposition	3565 Oct 23 08:02	0°♈22'58	-17°-6'-24
direct	3558 Jan 03 20:12	20°♊33'52			3565 Nov 12 09:19	30°♈♊	
				direct	3566 Jan 12 14:50	29°♊21'49	
conjunction	3558 Apr 12 01:03	22°♊08'36	-15°-48'-9		3566 Mar 12 17:23	0°♈	
minimum elong	3558 Apr 12 00:59	22°♊08'36	15°48'10				
max. Earth dist.	3558 Apr 14 15:32	22°♊12'33	46.30535 AU	conjunction	3566 Apr 20 19:13	0°♈53'49	-16°-25'-31
retrograde	3558 Jul 23 21:18	23°♊47'09		minimum elong	3566 Apr 20 19:12	0°♈53'49	16°25'33
min. Earth dist.	3558 Oct 13 05:17	22°♊46'33	44.47241 AU	max. Earth dist.	3566 Apr 23 03:29	0°♈57'16	47.60298 AU
opposition	3558 Oct 15 19:20	22°♊43'28	-16°-33'-28	retrograde	3566 Aug 01 15:00	2°♈29'41	
direct	3559 Jan 05 03:54	21°♊41'09		min. Earth dist.	3566 Oct 22 09:12	1°♈29'55	45.76064 AU
				opposition	3566 Oct 24 15:59	1°♈27'15	-17°-9'-43
conjunction	3559 Apr 13 09:47	23°♊15'30	-15°-54'-7	direct	3567 Jan 13 23:24	0°♈26'12	
minimum elong	3559 Apr 13 09:42	23°♊15'30	15°54'08				
max. Earth dist.	3559 Apr 16 00:13	23°♊19'25	46.47938 AU	conjunction	3567 Apr 22 03:02	1°♈57'53	-16°-28'-41
retrograde	3559 Jul 25 07:42	24°♊53'40		minimum elong	3567 Apr 22 03:02	1°♈57'53	16°28'42
min. Earth dist.	3559 Oct 14 15:55	23°♊53'09	44.64620 AU	max. Earth dist.	3567 Apr 24 11:17	2°♈01'19	47.74547 AU
opposition	3559 Oct 17 04:36	23°♊50'08	-16°-39'-19	retrograde	3567 Aug 02 20:15	3°♈33'26	
direct	3560 Jan 06 11:13	22°♊48'00		min. Earth dist.	3567 Oct 23 18:10	2°♈33'42	45.90144 AU
				opposition	3567 Oct 25 23:45	2°♈31'05	-17°-12'-42
conjunction	3560 Apr 13 18:20	24°♊21'58	-15°-59'-41	direct	3568 Jan 15 09:55	1°♈30'10	
minimum elong	3560 Apr 13 18:17	24°♊21'58	15°59'43				
max. Earth dist.	3560 Apr 16 08:29	24°♊25'51	46.65092 AU	conjunction	3568 Apr 22 10:21	3°♈01'31	-16°-31'-30
retrograde	3560 Jul 25 14:37	25°♊59'46		minimum elong	3568 Apr 22 10:20	3°♈01'31	16°31'32
min. Earth dist.	3560 Oct 15 00:44	24°♊59'25	44.81717 AU	max. Earth dist.	3568 Apr 24 16:54	3°♈04'50	47.88389 AU
opposition	3560 Oct 17 13:31	24°♊56'24	-16°-44'-45	retrograde	3568 Aug 03 04:52	4°♈36'44	
direct	3561 Jan 06 20:23	23°♊54'26		min. Earth dist.	3568 Oct 24 01:46	3°♈37'07	46.03859 AU
				opposition	3568 Oct 26 07:20	3°♈34'30	-17°-15'-21
conjunction	3561 Apr 15 02:40	25°♊28'04	-16°-4'-52	direct	3569 Jan 15 17:50	2°♈33'41	
minimum elong	3561 Apr 15 02:37	25°♊28'03	16°04'53				
max. Earth dist.	3561 Apr 17 15:34	25°♊31'51	46.81959 AU	conjunction	3569 Apr 23 17:41	4°♈04'43	-16°-34'00
retrograde	3561 Jul 26 22:31	27°♊05'32		minimum elong	3569 Apr 23 17:43	4°♈04'43	16°34'02
min. Earth dist.	3561 Oct 16 10:24	26°♊05'17	44.98522 AU	max. Earth dist.	3569 Apr 26 00:18	4°♈08'02	48.01889 AU
opposition	3561 Oct 18 22:25	26°♊02'20	-16°-49'-48	retrograde	3569 Aug 04 14:33	5°♈39'38	
direct	3562 Jan 08 05:59	25°♊00'32		min. Earth dist.	3569 Oct 25 10:51	4°♈40'02	46.17256 AU
				opposition	3569 Oct 27 14:50	4°♈37'31	-17°-17'-39
conjunction	3562 Apr 16 11:02	26°♊33'49	-16°-9'-41	direct	3570 Jan 16 23:54	3°♈36'48	
minimum elong	3562 Apr 16 11:00	26°♊33'49	16°09'43				
max. Earth dist.	3562 Apr 19 00:23	26°♊37'38	46.98505 AU	conjunction	3570 Apr 25 00:53	5°♈07'32	-16°-36'-10
retrograde	3562 Jul 28 05:46	28°♊10'59		minimum elong	3570 Apr 25 00:53	5°♈07'32	16°36'11
min. Earth dist.	3562 Oct 17 20:24	27°♊10'50	45.14955 AU	max. Earth dist.	3570 Apr 27 06:46	5°♈10'47	48.15112 AU
opposition	3562 Oct 20 07:05	27°♊07'57	-16°-54'-28	retrograde	3570 Aug 05 22:28	6°♈42'08	

min. Earth dist.	3570 Oct 26 17:45	5°8'42"39	46.30370 AU	conjunction	3579 May 04 13:17	14°8'19"55	-16°-41'-24
opposition	3570 Oct 28 22:01	5°8'40"08	-17°-19'-35	minimum elong	3579 May 04 13:20	14°8'19"55	16°41'25
direct	3571 Jan 18 04:43	4°8'39"31		max. Earth dist.	3579 May 06 11:05	14°8'22"37	49.18988 AU
					3579 Jun 02 20:45	15°8'	
conjunction	3571 Apr 26 07:54	6°8'09"58	-16°-37'-59	retrograde	3579 Aug 15 07:04	15°8'52"15	
minimum elong	3571 Apr 26 07:56	6°8'09"58	16°38'00		3579 Oct 30 17:35	15°8'	
max. Earth dist.	3571 Apr 28 12:41	6°8'13"09	48.28056 AU	min. Earth dist.	3579 Nov 05 15:14	14°8'53"17	47.32512 AU
retrograde	3571 Aug 07 04:15	7°8'44"17		opposition	3579 Nov 07 09:56	14°8'51"15	-17°-22'-43
min. Earth dist.	3571 Oct 28 01:59	6°8'44"52	46.43221 AU	direct	3580 Jan 27 21:27	13°8'51"37	
opposition	3571 Oct 30 05:07	6°8'42"24	-17°-21'-11		3580 Apr 20 14:15	15°8'	
direct	3572 Jan 19 12:22	5°8'41"55					
				conjunction	3580 May 04 19:31	15°8'19"53	-16°-40'-35
conjunction	3572 Apr 26 14:54	7°8'12"06	-16°-39'-28	minimum elong	3580 May 04 19:37	15°8'19"53	16°40'35
minimum elong	3572 Apr 26 14:55	7°8'12"06	16°39'28	max. Earth dist.	3580 May 06 16:09	15°8'22"30	49.28307 AU
max. Earth dist.	3572 Apr 28 20:03	7°8'15"17	48.40746 AU	retrograde	3580 Aug 15 14:51	16°8'51"58	
retrograde	3572 Aug 07 07:13	8°8'46"08		min. Earth dist.	3580 Nov 05 21:05	15°8'53"05	47.41614 AU
min. Earth dist.	3572 Oct 28 09:38	7°8'46"49	46.55790 AU	opposition	3580 Nov 07 15:54	15°8'51"03	-17°-21'-38
opposition	3572 Oct 30 12:07	7°8'44"22	-17°-22'-26		3580 Dec 31 04:27	15°8'	
direct	3573 Jan 19 22:37	6°8'44"01		direct	3581 Jan 28 01:20	14°8'51"30	
					3581 Feb 24 16:59	15°8'	
conjunction	3573 Apr 27 21:33	8°8'13"56	-16°-40'-37	conjunction	3581 May 06 01:27	16°8'19"32	-16°-39'-29
minimum elong	3573 Apr 27 21:35	8°8'13"56	16°40'38	minimum elong	3581 May 06 01:31	16°8'19"33	16°39'30
max. Earth dist.	3573 Apr 30 01:04	8°8'17"02	48.53159 AU	max. Earth dist.	3581 May 07 20:52	16°8'22"05	49.37242 AU
retrograde	3573 Aug 08 15:03	9°8'47"44		retrograde	3581 Aug 16 20:53	17°8'51"24	
min. Earth dist.	3573 Oct 29 16:37	8°8'48"31	46.68068 AU	min. Earth dist.	3581 Nov 07 04:43	16°8'52"31	47.50369 AU
opposition	3573 Oct 31 19:01	8°8'46"06	-17°-23'-21	opposition	3581 Nov 08 21:55	16°8'50"34	-17°-20'-16
direct	3574 Jan 21 05:45	7°8'45"52		direct	3582 Jan 29 06:31	15°8'51"05	
conjunction	3574 Apr 29 04:22	9°8'15"32	-16°-41'-27	conjunction	3582 May 07 07:37	17°8'18"55	-16°-38'-6
minimum elong	3574 Apr 29 04:24	9°8'15"32	16°41'28	minimum elong	3582 May 07 07:43	17°8'18"56	16°38'07
max. Earth dist.	3574 May 01 07:49	9°8'18"37	48.65246 AU	max. Earth dist.	3582 May 09 03:11	17°8'21"28	49.45858 AU
retrograde	3574 Aug 09 23:19	10°8'49"06		retrograde	3582 Aug 17 23:05	18°8'50"34	
min. Earth dist.	3574 Oct 31 01:18	9°8'49"55	46.79988 AU	min. Earth dist.	3582 Nov 08 10:53	17°8'51"45	47.58799 AU
opposition	3574 Nov 02 01:44	9°8'47"35	-17°-23'-57	opposition	3582 Nov 10 03:32	17°8'49"49	-17°-18'-36
direct	3575 Jan 22 12:38	8°8'47"29		direct	3583 Jan 30 14:47	16°8'50"25	
conjunction	3575 Apr 30 11:09	10°8'16"55	-16°-41'-59	conjunction	3583 May 08 13:29	18°8'18"05	-16°-36'-26
minimum elong	3575 Apr 30 11:12	10°8'16"56	16°42'01	minimum elong	3583 May 08 13:34	18°8'18"05	16°36'27
max. Earth dist.	3575 May 02 13:33	10°8'19"55	48.76964 AU	max. Earth dist.	3583 May 10 07:10	18°8'20"31	49.54174 AU
retrograde	3575 Aug 11 06:59	11°8'50"14		retrograde	3583 Aug 19 04:55	19°8'49"32	
min. Earth dist.	3575 Nov 01 08:02	10°8'51"10	46.91491 AU	min. Earth dist.	3583 Nov 09 16:52	18°8'50"48	47.66944 AU
opposition	3575 Nov 03 08:19	10°8'48"51	-17°-24'-15	opposition	3583 Nov 11 09:14	18°8'48"53	-17°-16'-38
direct	3576 Jan 23 17:20	9°8'48"52		direct	3584 Jan 31 21:20	17°8'49"34	
conjunction	3576 Apr 30 17:40	11°8'18"05	-16°-42'-14	conjunction	3584 May 08 19:15	19°8'17"04	-16°-34'-28
minimum elong	3576 Apr 30 17:43	11°8'18"05	16°42'15	minimum elong	3584 May 08 19:22	19°8'17"04	16°34'30
max. Earth dist.	3576 May 02 18:25	11°8'20"59	48.88222 AU	max. Earth dist.	3584 May 10 13:04	19°8'19"30	49.62197 AU
retrograde	3576 Aug 11 14:07	12°8'51"09		retrograde	3584 Aug 19 11:43	20°8'48"21	
min. Earth dist.	3576 Nov 01 16:24	11°8'52"07	47.02517 AU	min. Earth dist.	3584 Nov 10 00:12	19°8'49"38	47.74783 AU
opposition	3576 Nov 03 15:00	11°8'49"53	-17°-24'-16	opposition	3584 Nov 11 14:57	19°8'47"48	-17°-14'-23
direct	3577 Jan 23 22:13	10°8'50"01		direct	3585 Feb 01 03:55	18°8'48"35	
conjunction	3577 May 02 00:24	12°8'19"00	-16°-42'-13	conjunction	3585 May 10 01:04	20°8'15"55	-16°-32'-14
minimum elong	3577 May 02 00:27	12°8'19"00	16°42'15	minimum elong	3585 May 10 01:09	20°8'15"55	16°32'15
max. Earth dist.	3577 May 04 00:51	12°8'21"52	48.98991 AU	max. Earth dist.	3585 May 11 17:52	20°8'18"17	49.69932 AU
retrograde	3577 Aug 12 18:04	13°8'51"49		retrograde	3585 Aug 20 19:02	21°8'47"02	
min. Earth dist.	3577 Nov 03 00:04	12°8'52"50	47.13017 AU	min. Earth dist.	3585 Nov 11 05:29	20°8'48"27	47.82309 AU
opposition	3577 Nov 04 21:27	12°8'50"40	-17°-24'-1	opposition	3585 Nov 12 20:23	20°8'46"36	-17°-11'-50
direct	3578 Jan 25 06:56	11°8'50"53		direct	3586 Feb 02 07:13	19°8'47"30	
conjunction	3578 May 03 06:52	13°8'19"37	-16°-41'-56	conjunction	3586 May 11 06:46	21°8'14"41	-16°-29'-43
minimum elong	3578 May 03 06:56	13°8'19"37	16°41'57	minimum elong	3586 May 11 06:53	21°8'14"42	16°29'44
max. Earth dist.	3578 May 05 05:04	13°8'22"21	49.09242 AU	max. Earth dist.	3586 May 12 22:13	21°8'16"58	49.77323 AU
retrograde	3578 Aug 14 00:05	14°8'52"11		retrograde	3586 Aug 22 02:31	22°8'45"39	
min. Earth dist.	3578 Nov 04 07:06	13°8'53"15	47.23006 AU	min. Earth dist.	3586 Nov 12 12:49	21°8'47"05	47.89469 AU
opposition	3578 Nov 06 03:48	13°8'51"07	-17°-23'-30	opposition	3586 Nov 14 01:57	21°8'45"20	-17°-9'-1
direct	3579 Jan 26 14:20	12°8'51"25					

direct	3587 Feb 03 09:50	20° ♄ 46'19		conjunction	3595 May 20 08:35	29° ♄ 56'48	-15°-56'-15
				minimum elong	3595 May 20 08:45	29° ♄ 56'48	15°56'16
conjunction	3587 May 12 12:37	22° ♄ 13'23	-16°-26'-56	max. Earth dist.	3595 May 21 14:11	29° ♄ 58'29	50.22896 AU
minimum elong	3587 May 12 12:43	22° ♄ 13'24	16°26'56		3595 May 22 16:38	0° ♄	
max. Earth dist.	3587 May 14 03:52	22° ♄ 15'40	49.84321 AU	retrograde	3595 Aug 30 22:50	1° ♄ 26'21	
retrograde	3587 Aug 23 05:46	23° ♄ 44'12		opposition	3595 Nov 22 23:33	0° ♄ 26'32	-16°-32'-43
min. Earth dist.	3587 Nov 13 19:00	22° ♄ 45'41	47.96186 AU	min. Earth dist.	3595 Nov 21 19:38	0° ♄ 27'50	48.32470 AU
opposition	3587 Nov 15 07:12	22° ♄ 43'59	-17°-5'-57		3595 Dec 17 10:35	30° ♄	
direct	3588 Feb 04 16:20	21° ♄ 45'04		direct	3596 Feb 12 13:30	29° ♄ 27'54	
					3596 Apr 08 04:57	0° ♄	
conjunction	3588 May 12 18:17	23° ♄ 12'00	-16°-23'-55	conjunction	3596 May 20 13:42	0° ♄ 53'44	-15°-51'-18
minimum elong	3588 May 12 18:24	23° ♄ 12'01	16°23'56	minimum elong	3596 May 20 13:49	0° ♄ 53'45	15°51'19
max. Earth dist.	3588 May 14 07:18	23° ♄ 14'09	49.90857 AU	max. Earth dist.	3596 May 21 17:58	0° ♄ 55'21	50.25983 AU
retrograde	3588 Aug 23 10:37	24° ♄ 42'40		retrograde	3596 Aug 31 06:08	2° ♄ 23'10	
min. Earth dist.	3588 Nov 14 01:24	23° ♄ 44'13	48.02420 AU	min. Earth dist.	3596 Nov 22 02:02	1° ♄ 24'38	48.35334 AU
opposition	3588 Nov 15 12:36	23° ♄ 42'33	-17°-2'-37	opposition	3596 Nov 23 04:22	1° ♄ 23'24	-16°-27'-25
direct	3589 Feb 04 22:36	22° ♄ 43'43		direct	3597 Feb 12 15:53	0° ♄ 24'49	
conjunction	3589 May 13 23:59	24° ♄ 10'31	-16°-20'-40	conjunction	3597 May 21 18:50	1° ♄ 50'34	-15°-46'-6
minimum elong	3589 May 14 00:06	24° ♄ 10'31	16°20'40	minimum elong	3597 May 21 19:00	1° ♄ 50'35	15°46'07
max. Earth dist.	3589 May 15 12:23	24° ♄ 12'37	49.96869 AU	max. Earth dist.	3597 May 22 23:17	1° ♄ 52'11	50.28785 AU
retrograde	3589 Aug 24 15:57	25° ♄ 41'02		retrograde	3597 Sep 01 09:34	3° ♄ 19'53	
min. Earth dist.	3589 Nov 15 08:51	24° ♄ 42'33	48.08098 AU	min. Earth dist.	3597 Nov 23 07:07	2° ♄ 21'24	48.37879 AU
opposition	3589 Nov 16 18:00	24° ♄ 40'59	-16°-59'-5	opposition	3597 Nov 24 08:59	2° ♄ 20'11	-16°-21'-51
direct	3590 Feb 06 06:41	23° ♄ 42'12		direct	3598 Feb 13 20:35	1° ♄ 21'40	
conjunction	3590 May 15 05:44	25° ♄ 08'51	-16°-17'-11	conjunction	3598 May 22 23:56	2° ♄ 47'21	-15°-40'-39
minimum elong	3590 May 15 05:51	25° ♄ 08'52	16°17'12	minimum elong	3598 May 23 00:05	2° ♄ 47'21	15°40'39
max. Earth dist.	3590 May 16 16:27	25° ♄ 10'51	50.02341 AU	max. Earth dist.	3598 May 24 02:22	2° ♄ 48'51	50.31259 AU
retrograde	3590 Aug 26 00:15	26° ♄ 39'12		retrograde	3598 Sep 02 14:25	4° ♄ 16'34	
opposition	3590 Nov 17 23:02	25° ♄ 39'13	-16°-55'-18	opposition	3598 Nov 25 13:28	3° ♄ 16'57	-16°-16'-2
min. Earth dist.	3590 Nov 16 14:18	25° ♄ 40'45	48.13232 AU	min. Earth dist.	3598 Nov 24 12:30	3° ♄ 18'07	48.40084 AU
direct	3591 Feb 07 10:12	24° ♄ 40'28		direct	3599 Feb 15 01:06	2° ♄ 18'28	
conjunction	3591 May 16 11:17	26° ♄ 06'58	-16°-13'-29	conjunction	3599 May 24 05:11	3° ♄ 44'06	-15°-34'-57
minimum elong	3591 May 16 11:25	26° ♄ 06'58	16°13'30	minimum elong	3599 May 24 05:21	3° ♄ 44'07	15°34'59
max. Earth dist.	3591 May 17 20:18	26° ♄ 08'52	50.07275 AU	max. Earth dist.	3599 May 25 07:16	3° ♄ 45'35	50.33352 AU
retrograde	3591 Aug 27 07:01	27° ♄ 37'08		retrograde	3599 Sep 03 18:19	5° ♄ 13'16	
min. Earth dist.	3591 Nov 17 21:34	26° ♄ 38'37	48.17862 AU	opposition	3599 Nov 26 18:06	4° ♄ 13'43	-16°-9'-59
opposition	3591 Nov 19 04:13	26° ♄ 37'11	-16°-51'-17	min. Earth dist.	3599 Nov 25 18:58	4° ♄ 14'48	48.41869 AU
direct	3592 Feb 08 13:10	25° ♄ 38'28		direct	3600 Feb 16 08:17	3° ♄ 15'18	
conjunction	3592 May 16 16:41	27° ♄ 04'48	-16°-9'-33	conjunction	3600 May 24 10:15	4° ♄ 40'53	-15°-29'-2
minimum elong	3592 May 16 16:48	27° ♄ 04'49	16°09'34	minimum elong	3600 May 24 10:25	4° ♄ 40'53	15°29'02
max. Earth dist.	3592 May 18 01:30	27° ♄ 06'41	50.11743 AU	max. Earth dist.	3600 May 25 10:54	4° ♄ 42'17	50.35013 AU
retrograde	3592 Aug 27 09:04	28° ♄ 34'48		retrograde	3600 Sep 04 01:38	6° ♄ 09'59	
min. Earth dist.	3592 Nov 18 03:10	27° ♄ 36'17	48.22041 AU	opposition	3600 Nov 26 22:38	5° ♄ 10'30	-16°-3'-42
opposition	3592 Nov 19 09:13	27° ♄ 34'53	-16°-47'-2	min. Earth dist.	3600 Nov 25 23:49	5° ♄ 11'34	48.43183 AU
direct	3593 Feb 08 20:00	26° ♄ 36'11					
conjunction	3593 May 17 22:00	28° ♄ 02'23	-16°-5'-22				
minimum elong	3593 May 17 22:09	28° ♄ 02'23	16°05'23				
max. Earth dist.	3593 May 19 04:46	28° ♄ 04'09	50.15803 AU				
retrograde	3593 Aug 28 12:23	29° ♄ 32'12					
min. Earth dist.	3593 Nov 19 08:44	28° ♄ 33'41	48.25852 AU				
opposition	3593 Nov 20 14:04	28° ♄ 32'19	-16°-42'-32				
direct	3594 Feb 10 02:15	27° ♄ 33'38					
conjunction	3594 May 19 03:22	28° ♄ 59'42	-16°00'-56				
minimum elong	3594 May 19 03:29	28° ♄ 59'42	16°00'57				
max. Earth dist.	3594 May 20 10:02	29° ♄ 01'27	50.19505 AU				
	3594 Jul 06 07:03	0° ♄					
retrograde	3594 Aug 29 16:42	0° ♄ 29'23					
	3594 Oct 24 07:42	30° ♄					
opposition	3594 Nov 21 18:57	29° ♄ 29'31	-16°-37'-45				
min. Earth dist.	3594 Nov 20 15:15	29° ♄ 30'49	48.29314 AU				
direct	3595 Feb 11 09:16	28° ♄ 30'52					

direct	3600 Feb 16 08:17	3°II15'18		conjunction	3608 Jun 01 02:38	12°II12'49	-14°-33'-48
				minimum elong	3608 Jun 01 02:50	12°II12'50	14°33'49
conjunction	3600 May 24 10:15	4°II40'53	-15°-29'-2	max. Earth dist.	3608 Jun 01 17:34	12°II13'40	50.31518 AU
minimum elong	3600 May 24 10:25	4°II40'53	15°29'02	retrograde	3608 Sep 11 16:33	13°II41'24	
max. Earth dist.	3600 May 25 10:54	4°II42'17	50.35013 AU	opposition	3608 Dec 04 09:31	12°II42'05	-15°-5'-21
retrograde	3600 Sep 04 01:38	6°II09'59		min. Earth dist.	3608 Dec 03 19:26	12°II42'44	48.37195 AU
opposition	3600 Nov 26 22:38	5°II10'30	-16°-3'-42	direct	3609 Feb 23 21:00	11°II43'44	
min. Earth dist.	3600 Nov 25 23:49	5°II11'34	48.43183 AU				
direct	3601 Feb 16 11:36	4°II12'07		conjunction	3609 Jun 02 07:40	13°II09'00	-14°-25'-50
				minimum elong	3609 Jun 02 07:50	13°II09'01	14°25'51
conjunction	3601 May 25 15:29	5°II37'40	-15°-22'-54	max. Earth dist.	3609 Jun 02 22:24	13°II09'50	50.29521 AU
minimum elong	3601 May 25 15:38	5°II37'40	15°22'56	retrograde	3609 Sep 12 18:20	14°II37'34	
max. Earth dist.	3601 May 26 14:17	5°II38'57	50.36163 AU	opposition	3609 Dec 05 13:44	13°II38'16	-14°-56'-57
retrograde	3601 Sep 05 09:27	7°II06'42		min. Earth dist.	3609 Dec 05 01:06	13°II38'52	48.34924 AU
min. Earth dist.	3601 Nov 27 06:44	6°II08'13	48.43975 AU	direct	3610 Feb 25 04:39	12°II39'56	
opposition	3601 Nov 28 03:14	6°II07'16	-15°-57'-12				
direct	3602 Feb 17 13:05	5°II08'55		conjunction	3610 Jun 03 12:40	14°II05'13	-14°-17'-37
				minimum elong	3610 Jun 03 12:52	14°II05'13	14°17'39
conjunction	3602 May 26 20:49	6°II34'25	-15°-16'-33	max. Earth dist.	3610 Jun 04 02:20	14°II05'59	50.27225 AU
minimum elong	3602 May 26 21:00	6°II34'25	15°16'34	retrograde	3610 Sep 14 00:27	15°II33'47	
max. Earth dist.	3602 May 27 19:01	6°II35'40	50.36790 AU	opposition	3610 Dec 06 17:54	14°II34'31	-14°-48'-19
retrograde	3602 Sep 06 12:14	8°II03'22		min. Earth dist.	3610 Dec 06 05:24	14°II35'06	48.32322 AU
min. Earth dist.	3602 Nov 28 11:57	7°II04'53	48.44223 AU	direct	3611 Feb 26 09:11	13°II36'11	
opposition	3602 Nov 29 07:42	7°II03'58	-15°-50'-30				
direct	3603 Feb 18 19:03	6°II05'38		conjunction	3611 Jun 04 17:36	15°II01'30	-14°-9'-11
				minimum elong	3611 Jun 04 17:47	15°II01'30	14°09'12
conjunction	3603 May 28 01:52	7°II31'04	-15°-10'00	max. Earth dist.	3611 Jun 05 05:39	15°II02'10	50.24554 AU
minimum elong	3603 May 28 02:01	7°II31'05	15°10'01	retrograde	3611 Sep 15 09:08	16°II30'04	
max. Earth dist.	3603 May 28 21:38	7°II32'12	50.36894 AU	opposition	3611 Dec 07 22:11	15°II30'50	-14°-39'-26
retrograde	3603 Sep 07 15:05	8°II59'57		min. Earth dist.	3611 Dec 07 11:47	15°II31'19	48.29323 AU
opposition	3603 Nov 30 12:05	8°II00'34	-15°-43'-34	direct	3612 Feb 27 10:17	14°II32'31	
min. Earth dist.	3603 Nov 29 17:31	8°II01'25	48.43982 AU				
direct	3604 Feb 20 00:46	7°II02'13		conjunction	3612 Jun 04 22:46	15°II57'51	-14°00'-31
				minimum elong	3612 Jun 04 22:57	15°II57'52	14°00'33
conjunction	3604 May 28 06:58	8°II27'37	-15°-3'-14	max. Earth dist.	3612 Jun 05 10:25	15°II58'30	50.21461 AU
minimum elong	3604 May 28 07:09	8°II27'38	15°03'14	retrograde	3612 Sep 15 13:13	17°II26'25	
max. Earth dist.	3604 May 29 02:23	8°II28'43	50.36531 AU	opposition	3612 Dec 08 02:22	16°II27'13	-14°-30'-21
retrograde	3604 Sep 07 18:40	9°II56'26		min. Earth dist.	3612 Dec 07 16:40	16°II27'40	48.25855 AU
opposition	3604 Nov 30 16:30	8°II57'03	-15°-36'-25	direct	3613 Feb 27 14:40	15°II28'53	
min. Earth dist.	3604 Nov 29 23:39	8°II57'50	48.43299 AU				
direct	3605 Feb 20 07:47	7°II58'43		conjunction	3613 Jun 06 03:50	16°II54'16	-13°-51'-39
				minimum elong	3613 Jun 06 04:01	16°II54'16	13°51'40
conjunction	3605 May 29 11:54	9°II24'03	-14°-56'-14	max. Earth dist.	3613 Jun 06 13:00	16°II54'47	50.17872 AU
minimum elong	3605 May 29 12:04	9°II24'03	14°56'15	retrograde	3613 Sep 16 17:17	18°II22'49	
max. Earth dist.	3605 May 30 06:04	9°II25'05	50.35774 AU	opposition	3613 Dec 09 06:43	17°II23'37	-14°-21'-2
retrograde	3605 Sep 09 00:44	10°II52'47		min. Earth dist.	3613 Dec 08 22:25	17°II24'00	48.21868 AU
opposition	3605 Dec 01 20:45	9°II53'25	-15°-29'-1	direct	3614 Feb 28 18:59	16°II25'17	
min. Earth dist.	3605 Dec 01 03:54	9°II54'13	48.42243 AU				
direct	3606 Feb 21 12:01	8°II55'04		conjunction	3614 Jun 07 09:10	17°II50'41	-13°-42'-35
				minimum elong	3614 Jun 07 09:21	17°II50'42	13°42'36
conjunction	3606 May 30 16:53	10°II20'22	-14°-49'00	max. Earth dist.	3614 Jun 07 17:29	17°II51'09	50.13735 AU
minimum elong	3606 May 30 17:05	10°II20'23	14°49'00	retrograde	3614 Sep 17 19:55	19°II19'15	
max. Earth dist.	3606 May 31 09:35	10°II21'19	50.34653 AU	opposition	3614 Dec 10 10:57	18°II20'02	-14°-11'-32
retrograde	3606 Sep 10 07:58	11°II49'03		min. Earth dist.	3614 Dec 10 04:40	18°II20'19	48.17326 AU
min. Earth dist.	3606 Dec 02 09:56	10°II50'24	48.40855 AU	direct	3615 Mar 02 02:05	17°II21'39	
opposition	3606 Dec 03 00:59	10°II49'42	-15°-21'-23				
direct	3607 Feb 22 13:57	9°II51'21		conjunction	3615 Jun 08 14:22	18°II47'05	-13°-33'-19
				minimum elong	3615 Jun 08 14:34	18°II47'06	13°33'19
conjunction	3607 May 31 21:56	11°II16'37	-14°-41'-31	max. Earth dist.	3615 Jun 08 21:03	18°II47'28	50.09079 AU
minimum elong	3607 May 31 22:06	11°II16'38	14°41'32	retrograde	3615 Sep 19 01:11	20°II15'39	
max. Earth dist.	3607 Jun 01 14:42	11°II17'34	50.33229 AU	opposition	3615 Dec 11 15:10	19°II16'24	-14°-1'-48
retrograde	3607 Sep 11 11:52	12°II45'14		min. Earth dist.	3615 Dec 11 09:10	19°II16'41	48.12278 AU
opposition	3607 Dec 04 05:12	11°II45'54	-15°-13'-30	direct	3616 Mar 02 06:49	18°II17'59	
min. Earth dist.	3607 Dec 03 14:26	11°II46'36	48.39162 AU				
direct	3608 Feb 23 17:08	10°II47'33		conjunction	3616 Jun 08 19:21	19°II43'26	-13°-23'-50

minimum elong	3616 Jun 08 19:32	19°II43'27	13°23'51	opposition	3624 Dec 19 05:58	27°II45'46	-12°-23'-40
max. Earth dist.	3616 Jun 09 00:16	19°II43'43	50.03926 AU	min. Earth dist.	3624 Dec 19 10:12	27°II45'34	47.50149 AU
retrograde	3616 Sep 19 08:00	21°II12'01		direct	3625 Mar 10 21:01	26°II47'00	
opposition	3616 Dec 11 19:32	20°II12'44	-13°-51'-52				
min. Earth dist.	3616 Dec 11 15:40	20°II12'55	48.06770 AU	conjunction	3625 Jun 17 19:04	28°II13'22	-11°-48'-7
direct	3617 Mar 03 09:50	19°II14'16		minimum elong	3625 Jun 17 19:16	28°II13'23	11°48'08
				max. Earth dist.	3625 Jun 17 14:19	28°II13'06	49.41410 AU
conjunction	3617 Jun 10 00:37	20°II39'46	-13°-14'-7	retrograde	3625 Sep 28 04:40	29°II42'35	
minimum elong	3617 Jun 10 00:50	20°II39'46	13°14'09	opposition	3625 Dec 20 10:21	28°II43'11	-12°-11'-35
max. Earth dist.	3617 Jun 10 05:23	20°II40'02	49.98349 AU	min. Earth dist.	3625 Dec 20 15:08	28°II42'57	47.41261 AU
retrograde	3617 Sep 20 12:41	22°II08'20		direct	3626 Mar 12 02:16	27°II44'21	
opposition	3617 Dec 12 23:38	21°II09'02	-13°-41'-42				
min. Earth dist.	3617 Dec 12 20:15	21°II09'12	48.00855 AU	conjunction	3626 Jun 19 00:48	29°II10'51	-11°-36'-21
direct	3618 Mar 04 13:25	20°II10'30		minimum elong	3626 Jun 19 01:00	29°II10'52	11°36'22
				max. Earth dist.	3626 Jun 18 17:54	29°II10'28	49.32391 AU
conjunction	3618 Jun 11 05:45	21°II36'04	-13°-4'-12		3626 Jul 27 03:23	0°☾	
minimum elong	3618 Jun 11 05:56	21°II36'05	13°04'13	retrograde	3626 Sep 29 12:10	0°☾40'11	
max. Earth dist.	3618 Jun 11 08:19	21°II36'13	49.92394 AU		3626 Dec 04 06:03	30°RII	
retrograde	3618 Sep 21 17:52	23°II04'40		opposition	3626 Dec 21 15:03	29°II40'43	-11°-59'-18
opposition	3618 Dec 14 03:53	22°II05'20	-13°-31'-17	min. Earth dist.	3626 Dec 21 22:12	29°II40'23	47.31828 AU
min. Earth dist.	3618 Dec 14 01:30	22°II05'27	47.94594 AU	direct	3627 Mar 13 05:39	28°II41'49	
direct	3619 Mar 05 17:04	21°II06'46			3627 Jun 14 01:48	0°☾	
conjunction	3619 Jun 12 10:55	22°II32'23	-12°-54'-2	conjunction	3627 Jun 20 06:30	0°☾08'26	-11°-24'-23
minimum elong	3619 Jun 12 11:07	22°II32'24	12°54'03	minimum elong	3627 Jun 20 06:41	0°☾08'27	11°24'25
max. Earth dist.	3619 Jun 12 13:14	22°II32'31	49.86097 AU	max. Earth dist.	3627 Jun 19 23:05	0°☾08'01	49.22844 AU
retrograde	3619 Sep 22 20:03	24°II01'02		retrograde	3627 Sep 30 18:42	1°☾37'51	
opposition	3619 Dec 15 08:09	23°II01'41	-13°-20'-37	opposition	3627 Dec 22 19:35	0°☾38'19	-11°-46'-47
min. Earth dist.	3619 Dec 15 07:06	23°II01'44	47.88003 AU	min. Earth dist.	3627 Dec 23 03:21	0°☾37'57	47.21875 AU
direct	3620 Mar 05 23:56	22°II03'04			3628 Jan 28 13:21	30°RII	
				direct	3628 Mar 13 09:01	29°II39'19	
conjunction	3620 Jun 12 16:05	23°II28'47	-12°-43'-38		3628 Apr 26 16:20	0°☾	
minimum elong	3620 Jun 12 16:16	23°II28'48	12°43'39				
max. Earth dist.	3620 Jun 12 17:22	23°II28'51	49.79511 AU	conjunction	3628 Jun 20 12:08	1°☾06'05	-11°-12'-12
retrograde	3620 Sep 23 01:33	24°II57'30		minimum elong	3628 Jun 20 12:20	1°☾06'06	11°12'14
opposition	3620 Dec 15 12:21	23°II58'08	-13°-9'-43	max. Earth dist.	3628 Jun 20 02:17	1°☾05'32	49.12811 AU
min. Earth dist.	3620 Dec 15 11:17	23°II58'11	47.81127 AU	retrograde	3628 Oct 01 01:15	2°☾35'35	
direct	3621 Mar 07 04:46	22°II59'29		opposition	3628 Dec 23 00:11	1°☾35'58	-11°-34'-3
				min. Earth dist.	3628 Dec 23 09:16	1°☾35'32	47.11477 AU
conjunction	3621 Jun 13 21:15	24°II25'18	-12°-32'-59	direct	3629 Mar 14 12:16	0°☾36'51	
minimum elong	3621 Jun 13 21:27	24°II25'19	12°33'01				
max. Earth dist.	3621 Jun 13 21:01	24°II25'18	49.72623 AU	conjunction	3629 Jun 21 17:56	2°☾03'46	-10°-59'-48
retrograde	3621 Sep 24 10:35	25°II54'06		minimum elong	3629 Jun 21 18:07	2°☾03'46	10°59'49
opposition	3621 Dec 16 16:46	24°II54'44	-12°-58'-34	max. Earth dist.	3629 Jun 21 07:35	2°☾03'10	49.02345 AU
min. Earth dist.	3621 Dec 16 17:33	24°II54'42	47.73946 AU	retrograde	3629 Oct 02 03:51	3°☾33'21	
direct	3622 Mar 08 05:54	23°II56'04		opposition	3629 Dec 24 04:50	2°☾33'39	-11°-21'-4
				min. Earth dist.	3629 Dec 24 15:25	2°☾33'09	47.00667 AU
conjunction	3622 Jun 15 02:41	25°II22'00	-12°-22'-7	direct	3630 Mar 15 19:11	1°☾34'26	
minimum elong	3622 Jun 15 02:52	25°II22'01	12°22'07				
max. Earth dist.	3622 Jun 15 02:20	25°II21'59	49.65427 AU	conjunction	3630 Jun 22 23:45	3°☾01'28	-10°-47'-10
retrograde	3622 Sep 25 15:50	26°II50'53		minimum elong	3630 Jun 22 23:57	3°☾01'29	10°47'11
opposition	3622 Dec 17 20:58	25°II51'32	-12°-47'-10	max. Earth dist.	3630 Jun 22 12:13	3°☾00'49	48.91511 AU
min. Earth dist.	3622 Dec 17 22:05	25°II51'29	47.66425 AU	retrograde	3630 Oct 03 07:22	4°☾31'11	
direct	3623 Mar 09 09:19	24°II52'50		opposition	3630 Dec 25 09:19	3°☾31'23	-11°-7'-50
				min. Earth dist.	3630 Dec 25 20:05	3°☾30'53	46.89519 AU
conjunction	3623 Jun 16 08:00	26°II18'55	-12°-11'00	direct	3631 Mar 17 02:10	2°☾32'03	
minimum elong	3623 Jun 16 08:11	26°II18'55	12°11'02				
max. Earth dist.	3623 Jun 16 05:31	26°II18'46	49.57871 AU	conjunction	3631 Jun 24 05:34	3°☾59'15	-10°-34'-17
retrograde	3623 Sep 26 20:47	27°II47'54		minimum elong	3631 Jun 24 05:45	3°☾59'16	10°34'18
opposition	3623 Dec 19 01:24	26°II48'32	-12°-35'-32	max. Earth dist.	3631 Jun 23 16:25	3°☾58'30	48.80348 AU
min. Earth dist.	3623 Dec 19 03:52	26°II48'25	47.58523 AU	retrograde	3631 Oct 04 15:04	5°☾29'05	
direct	3624 Mar 09 13:18	25°II49'49		opposition	3631 Dec 26 14:09	4°☾29'13	-10°-54'-21
				min. Earth dist.	3631 Dec 27 02:39	4°☾28'37	46.78074 AU
conjunction	3624 Jun 16 13:25	27°II16'03	-11°-59'-40	direct	3632 Mar 17 05:53	3°☾29'46	
minimum elong	3624 Jun 16 13:37	27°II16'03	11°59'40				
max. Earth dist.	3624 Jun 16 10:21	27°II15'52	49.49883 AU	conjunction	3632 Jun 24 11:24	4°☾57'08	-10°-21'-10
retrograde	3624 Sep 26 23:08	28°II45'09		minimum elong	3632 Jun 24 11:36	4°☾57'09	10°21'11

max. Earth dist.	3632 Jun 23 22:23	4°☾56'24	48.68914 AU	min. Earth dist.	3641 Jan 04 10:28	13°☾19'52	45.59514 AU
retrograde	3632 Oct 04 21:32	6°☾27'07		direct	3641 Mar 26 04:13	12°☾20'31	
opposition	3632 Dec 26 18:57	5°☾27'10	-10°-40'-37				
min. Earth dist.	3632 Dec 27 07:28	5°☾26'35	46.66354 AU	conjunction	3641 Jul 03 22:05	13°☾50'10	-8°-12'-14
direct	3633 Mar 18 09:27	4°☾27'37		minimum elong	3641 Jul 03 22:16	13°☾50'11	8°12'15
				max. Earth dist.	3641 Jul 02 20:33	13°☾48'41	47.49848 AU
conjunction	3633 Jun 25 17:23	5°☾55'12	-10°-7'-47	retrograde	3641 Oct 14 06:36	15°☾22'06	
minimum elong	3633 Jun 25 17:33	5°☾55'12	10°07'48	opposition	3642 Jan 04 18:21	14°☾21'25	-8°-25'-41
max. Earth dist.	3633 Jun 25 02:24	5°☾54'20	48.57215 AU	min. Earth dist.	3642 Jan 05 18:08	14°☾20'15	45.44187 AU
retrograde	3633 Oct 06 04:33	7°☾25'20		direct	3642 Mar 27 09:42	13°☾20'51	
opposition	3633 Dec 27 23:46	6°☾25'19	-10°-26'-37	max. Earth dist.	3642 Jul 04 03:34	14°☾49'18	47.34485 AU
min. Earth dist.	3633 Dec 28 13:28	6°☾24'40	46.54379 AU				
direct	3634 Mar 19 12:57	5°☾25'41		conjunction	3642 Jul 05 05:16	14°☾50'48	-7°-56'-44
				minimum elong	3642 Jul 05 05:26	14°☾50'48	7°56'45
conjunction	3634 Jun 26 23:37	6°☾53'29	-9°-54'-10	retrograde	3642 Oct 15 15:07	16°☾22'58	
minimum elong	3634 Jun 26 23:48	6°☾53'30	9°54'12	opposition	3643 Jan 06 00:03	15°☾22'10	-8°-9'-27
max. Earth dist.	3634 Jun 26 08:19	6°☾52'36	48.45237 AU	min. Earth dist.	3643 Jan 06 23:57	15°☾21'00	45.28524 AU
retrograde	3634 Oct 07 08:01	8°☾23'49		direct	3643 Mar 28 13:22	14°☾21'27	
opposition	3634 Dec 29 04:48	7°☾23'44	-10°-12'-22	max. Earth dist.	3643 Jul 05 08:32	15°☾50'04	47.18806 AU
min. Earth dist.	3634 Dec 29 19:45	7°☾23'01	46.42104 AU				
direct	3635 Mar 20 20:12	6°☾24'01		conjunction	3643 Jul 06 12:14	15°☾51'42	-7°-40'-58
				minimum elong	3643 Jul 06 12:24	15°☾51'42	7°41'00
conjunction	3635 Jun 28 05:44	7°☾52'03	-9°-40'-18	retrograde	3643 Oct 17 00:01	17°☾24'08	
minimum elong	3635 Jun 28 05:54	7°☾52'04	9°40'19	opposition	3644 Jan 07 05:59	16°☾23'12	-7°-52'-57
max. Earth dist.	3635 Jun 27 13:14	7°☾51'06	48.32955 AU	min. Earth dist.	3644 Jan 08 07:10	16°☾21'58	45.12584 AU
retrograde	3635 Oct 08 13:33	9°☾22'36		direct	3644 Mar 28 17:20	15°☾22'20	
opposition	3635 Dec 30 09:46	8°☾22'28	-9°-57'-51				
min. Earth dist.	3635 Dec 31 00:59	8°☾21'44	46.29494 AU	conjunction	3644 Jul 06 19:36	16°☾52'54	-7°-24'-58
direct	3636 Mar 21 01:52	7°☾22'40		minimum elong	3644 Jul 06 19:45	16°☾52'54	7°24'59
				max. Earth dist.	3644 Jul 05 15:41	16°☾51'15	47.02859 AU
conjunction	3636 Jun 28 12:07	8°☾50'58	-9°-26'-12	retrograde	3644 Oct 17 05:08	18°☾25'37	
minimum elong	3636 Jun 28 12:17	8°☾50'58	9°26'14	opposition	3645 Jan 07 11:57	17°☾24'33	-7°-36'-10
max. Earth dist.	3636 Jun 27 17:51	8°☾49'55	48.20285 AU	min. Earth dist.	3645 Jan 08 14:03	17°☾23'16	44.96386 AU
retrograde	3636 Oct 08 21:21	10°☾21'44		direct	3645 Mar 30 01:19	16°☾23'31	
opposition	3636 Dec 30 14:59	9°☾21'33	-9°-43'-5	max. Earth dist.	3645 Jul 06 21:56	17°☾52'43	46.86679 AU
min. Earth dist.	3636 Dec 31 08:31	9°☾20'43	46.16472 AU				
direct	3637 Mar 22 05:56	8°☾21'40		conjunction	3645 Jul 08 03:02	17°☾54'27	-7°-8'-41
				minimum elong	3645 Jul 08 03:11	17°☾54'27	7°08'43
conjunction	3637 Jun 29 18:47	9°☾50'13	-9°-11'-52	retrograde	3645 Oct 18 11:10	19°☾27'27	
minimum elong	3637 Jun 29 18:58	9°☾50'14	9°11'52	opposition	3646 Jan 08 18:03	18°☾26'16	-7°-19'-7
max. Earth dist.	3637 Jun 28 23:58	9°☾49'08	48.07174 AU	min. Earth dist.	3646 Jan 09 20:17	18°☾24'59	44.79954 AU
retrograde	3637 Oct 10 05:00	11°☾21'13		direct	3646 Mar 31 08:54	17°☾25'06	
opposition	3637 Dec 31 20:16	10°☾20'58	-9°-28'-6	max. Earth dist.	3646 Jul 08 04:12	18°☾54'34	46.70236 AU
min. Earth dist.	3638 Jan 01 14:20	10°☾20'06	46.02964 AU				
direct	3638 Mar 23 10:14	9°☾20'58		conjunction	3646 Jul 09 10:41	18°☾56'23	-6°-52'-10
max. Earth dist.	3638 Jun 30 03:56	10°☾48'34	47.93557 AU	minimum elong	3646 Jul 09 10:50	18°☾56'23	6°52'10
				retrograde	3646 Oct 19 18:18	20°☾29'43	
conjunction	3638 Jul 01 01:27	10°☾49'48	-8°-57'-18	opposition	3647 Jan 10 00:22	19°☾28'26	-7°-1'-47
minimum elong	3638 Jul 01 01:38	10°☾49'49	8°57'19	min. Earth dist.	3647 Jan 11 04:31	19°☾27'03	44.63255 AU
retrograde	3638 Oct 11 13:35	12°☾21'01		direct	3647 Apr 01 15:24	18°☾27'07	
opposition	3639 Jan 02 01:37	11°☾20'41	-9°-12'-52	max. Earth dist.	3647 Jul 09 11:53	19°☾56'56	46.53520 AU
min. Earth dist.	3639 Jan 02 21:23	11°☾19'44	45.88955 AU				
direct	3639 Mar 24 13:38	10°☾20'34		conjunction	3647 Jul 10 18:34	19°☾58'46	-6°-35'-22
max. Earth dist.	3639 Jul 01 10:07	11°☾48'23	47.79435 AU	minimum elong	3647 Jul 10 18:43	19°☾58'46	6°35'24
				retrograde	3647 Oct 21 02:44	21°☾32'28	
conjunction	3639 Jul 02 08:21	11°☾49'41	-8°-42'-31	opposition	3648 Jan 11 06:46	20°☾31'03	-6°-44'-11
minimum elong	3639 Jul 02 08:31	11°☾49'41	8°42'31	min. Earth dist.	3648 Jan 12 11:05	20°☾29'39	44.46249 AU
retrograde	3639 Oct 12 18:39	13°☾21'07		direct	3648 Apr 01 21:07	19°☾29'35	
opposition	3640 Jan 03 07:11	12°☾20'41	-8°-57'-23	max. Earth dist.	3648 Jul 09 17:27	20°☾59'40	46.36453 AU
min. Earth dist.	3640 Jan 04 04:26	12°☾19'39	45.74451 AU				
direct	3640 Mar 24 20:32	11°☾20'25		conjunction	3648 Jul 11 02:28	21°☾01'39	-6°-18'-20
				minimum elong	3648 Jul 11 02:37	21°☾01'39	6°18'20
conjunction	3640 Jul 02 15:04	12°☾49'48	-8°-27'-29	retrograde	3648 Oct 21 14:38	22°☾35'41	
minimum elong	3640 Jul 02 15:14	12°☾49'49	8°27'31	opposition	3649 Jan 11 13:29	21°☾34'10	-6°-26'-19
max. Earth dist.	3640 Jul 01 15:20	12°☾48'25	47.64857 AU	min. Earth dist.	3649 Jan 12 19:33	21°☾32'41	44.28866 AU
retrograde	3640 Oct 12 23:05	14°☾21'29		direct	3649 Apr 03 00:05	20°☾32'32	
opposition	3641 Jan 03 12:43	13°☾20'55	-8°-41'-40	max. Earth dist.	3649 Jul 11 01:20	22°☾03'00	46.18955 AU

conjunction	3649 Jul 12 10:58	22°05'00	-6°-1'-2	max. Earth dist.	3657 Jul 19 16:35	0°044'37	44.63873 AU
minimum elong	3649 Jul 12 11:06	22°05'01	6°01'04				
retrograde	3649 Oct 22 23:09	23°039'24		conjunction	3657 Jul 21 12:09	0°047'19	-3°-33'-40
opposition	3650 Jan 12 20:17	22°037'45	-6°-8'-11	minimum elong	3657 Jul 21 12:14	0°047'19	3°33'41
min. Earth dist.	3650 Jan 14 03:47	22°036'11	44.11018 AU	retrograde	3657 Oct 31 19:53	2°024'57	
direct	3650 Apr 04 07:04	21°035'57		opposition	3658 Jan 21 09:12	1°021'49	-3°-33'-26
max. Earth dist.	3650 Jul 12 07:56	23°006'41	46.00987 AU	min. Earth dist.	3658 Jan 23 00:30	1°019'48	42.53809 AU
				direct	3658 Apr 12 22:36	0°018'14	
conjunction	3650 Jul 13 19:31	23°008'50	-5°-43'-30	max. Earth dist.	3658 Jul 21 00:39	1°052'02	44.43213 AU
minimum elong	3650 Jul 13 19:39	23°008'50	5°43'30				
retrograde	3650 Oct 24 06:23	24°043'35		conjunction	3658 Jul 22 22:13	1°054'52	-3°-14'-4
opposition	3651 Jan 14 03:18	23°041'46	-5°-49'-47	minimum elong	3658 Jul 22 22:18	1°054'53	3°14'06
min. Earth dist.	3651 Jan 15 11:38	23°040'09	43.92692 AU	retrograde	3658 Nov 02 08:57	3°033'02	
direct	3651 Apr 05 15:13	22°039'46		opposition	3659 Jan 22 17:52	2°029'42	-3°-12'-50
max. Earth dist.	3651 Jul 13 14:40	24°010'48	45.82518 AU	min. Earth dist.	3659 Jan 24 10:44	2°027'37	42.32977 AU
				direct	3659 Apr 14 03:29	1°025'55	
conjunction	3651 Jul 15 04:08	24°013'04	-5°-25'-43	max. Earth dist.	3659 Jul 22 11:05	3°000'19	44.22330 AU
minimum elong	3651 Jul 15 04:15	24°013'04	5°25'45				
retrograde	3651 Oct 25 12:57	25°048'11		conjunction	3659 Jul 24 08:31	3°003'09	-2°-54'-12
opposition	3652 Jan 15 10:37	24°046'11	-5°-31'-8	minimum elong	3659 Jul 24 08:35	3°003'09	2°54'13
min. Earth dist.	3652 Jan 16 21:04	24°044'28	43.73884 AU	retrograde	3659 Nov 03 20:35	4°041'50	
direct	3652 Apr 06 00:06	23°043'59		opposition	3660 Jan 24 02:40	3°038'20	-2°-51'-56
max. Earth dist.	3652 Jul 13 23:03	25°015'23	45.63599 AU	min. Earth dist.	3660 Jan 25 20:07	3°036'12	42.11895 AU
				direct	3660 Apr 14 10:51	2°034'20	
conjunction	3652 Jul 15 13:03	25°017'41	-5°-7'-41	max. Earth dist.	3660 Jul 22 19:50	4°009'12	44.01174 AU
minimum elong	3652 Jul 15 13:11	25°017'42	5°07'42				
retrograde	3652 Oct 25 21:28	26°053'11		conjunction	3660 Jul 24 19:07	4°012'11	-2°-34'-5
opposition	3653 Jan 15 17:50	25°051'00	-5°-12'-13	minimum elong	3660 Jul 24 19:11	4°012'11	2°34'07
min. Earth dist.	3653 Jan 17 04:34	25°049'16	43.54645 AU	retrograde	3660 Nov 04 08:56	5°051'25	
direct	3653 Apr 07 07:08	24°048'34		opposition	3661 Jan 24 11:37	4°047'44	-2°-30'-45
max. Earth dist.	3653 Jul 15 05:38	26°020'15	45.44263 AU	min. Earth dist.	3661 Jan 26 06:08	4°045'33	41.90519 AU
				direct	3661 Apr 15 18:53	3°043'30	
conjunction	3653 Jul 16 22:04	26°022'43	-4°-49'-24	max. Earth dist.	3661 Jul 24 05:36	5°018'54	43.79657 AU
minimum elong	3653 Jul 16 22:11	26°022'43	4°49'25				
retrograde	3653 Oct 27 08:23	27°058'36		conjunction	3661 Jul 26 06:15	5°021'59	-2°-13'-42
opposition	3654 Jan 17 01:22	26°056'13	-4°-53'-1	minimum elong	3661 Jul 26 06:18	5°021'59	2°13'42
min. Earth dist.	3654 Jan 18 14:00	26°054'23	43.35028 AU	retrograde	3661 Nov 05 17:52	7°001'46	
direct	3654 Apr 08 12:20	25°053'33		opposition	3662 Jan 25 21:04	5°057'54	-2°-9'-18
max. Earth dist.	3654 Jul 16 14:39	27°025'39	45.24562 AU	min. Earth dist.	3662 Jan 27 17:27	5°055'36	41.68757 AU
				direct	3662 Apr 17 06:54	4°053'26	
conjunction	3654 Jul 18 07:23	27°028'09	-4°-30'-52	max. Earth dist.	3662 Jul 25 16:00	6°029'22	43.57747 AU
minimum elong	3654 Jul 18 07:29	27°028'09	4°30'52				
retrograde	3654 Oct 28 17:24	29°004'25		conjunction	3662 Jul 27 17:34	6°032'32	-1°-53'-4
opposition	3655 Jan 18 09:00	28°001'51	-4°-33'-33	minimum elong	3662 Jul 27 17:37	6°032'32	1°53'05
min. Earth dist.	3655 Jan 19 22:24	27°059'58	43.15078 AU	retrograde	3662 Nov 07 03:32	8°012'53	
direct	3655 Apr 09 20:40	26°058'57		opposition	3663 Jan 27 06:36	7°008'48	-1°-47'-34
max. Earth dist.	3655 Jul 17 22:27	28°031'26	45.04572 AU	min. Earth dist.	3663 Jan 29 03:18	7°006'28	41.46592 AU
				direct	3663 Apr 18 17:42	6°004'03	
conjunction	3655 Jul 19 16:42	28°034'01	-4°-12'-3	max. Earth dist.	3663 Jul 27 01:12	7°040'28	43.35419 AU
minimum elong	3655 Jul 19 16:48	28°034'02	4°12'05				
	3655 Sep 29 06:54	0°00		conjunction	3663 Jul 29 05:10	7°043'47	-1°-32'-10
retrograde	3655 Oct 30 03:03	0°010'43		minimum elong	3663 Jul 29 05:12	7°043'47	1°32'11
	3655 Nov 30 01:04	30°00		retrograde	3663 Nov 08 15:44	9°024'43	
opposition	3656 Jan 19 16:50	29°007'57	-4°-13'-48	opposition	3664 Jan 28 16:35	8°020'23	-1°-25'-34
min. Earth dist.	3656 Jan 21 06:39	29°006'02	42.94876 AU	min. Earth dist.	3664 Jan 30 15:26	8°017'56	41.24035 AU
direct	3656 Apr 10 05:05	28°004'49		direct	3664 Apr 19 01:27	7°015'21	
max. Earth dist.	3656 Jul 18 06:57	29°037'43	44.84325 AU	max. Earth dist.	3664 Jul 27 12:48	8°052'22	43.12709 AU
conjunction	3656 Jul 20 02:14	29°040'23	-3°-53'00	conjunction	3664 Jul 29 17:05	8°055'43	-1°-11'-1
minimum elong	3656 Jul 20 02:20	29°040'24	3°53'01	minimum elong	3664 Jul 29 17:07	8°055'43	1°11'03
	3656 Aug 02 10:28	0°00		retrograde	3664 Nov 09 04:00	10°037'14	
retrograde	3656 Oct 30 11:04	1°017'33		opposition	3665 Jan 29 02:45	9°032'38	-1°-3'-17
opposition	3657 Jan 20 01:03	0°014'35	-3°-53'-46	min. Earth dist.	3665 Jan 31 02:07	9°030'09	41.01110 AU
min. Earth dist.	3657 Jan 21 16:30	0°012'34	42.74441 AU	direct	3665 Apr 20 11:10	8°027'18	
	3657 Feb 01 01:56	30°00		max. Earth dist.	3665 Jul 28 22:49	10°004'48	42.89656 AU
direct	3657 Apr 11 14:08	29°011'13					
	3657 Jun 18 05:40	0°00		conjunction	3665 Jul 31 05:16	10°008'19	0°-49'-38

minimum elong	3665 Jul 31 05:17	10°♏08'19	0°49'38	min. Earth dist.	3673 Feb 10 04:45	19°♏34'48	39.10797 AU
retrograde	3665 Nov 10 19:21	11°♏50'24		direct	3673 Apr 30 04:16	18°♏29'49	
opposition	3666 Jan 30 13:04	10°♏45'32	0°-40'-43	max. Earth dist.	3673 Aug 08 05:01	20°♏12'51	40.98560 AU
min. Earth dist.	3666 Feb 01 13:36	10°♏42'59	40.77888 AU				
direct	3666 Apr 21 19:36	9°♏39'52		conjunction	3673 Aug 10 18:45	20°♏17'03	2°10'23
max. Earth dist.	3666 Jul 30 10:44	11°♏18'00	42.66308 AU	minimum elong	3673 Aug 10 18:41	20°♏17'03	2°10'23
				retrograde	3673 Nov 21 09:51	22°♏04'49	
conjunction	3666 Aug 01 17:50	11°♏21'34	0°-27'-59	opposition	3674 Feb 09 12:35	20°♏57'45	2°29'23
minimum elong	3666 Aug 01 17:51	11°♏21'34	0°28'00	min. Earth dist.	3674 Feb 11 20:07	20°♏54'42	38.86297 AU
retrograde	3666 Nov 12 07:49	13°♏04'16		direct	3674 May 01 17:23	19°♏49'31	
opposition	3667 Jan 31 23:53	11°♏59'06	0°-17'-53	max. Earth dist.	3674 Aug 09 20:18	21°♏33'24	40.73870 AU
min. Earth dist.	3667 Feb 03 01:44	11°♏56'28	40.54411 AU				
direct	3667 Apr 23 06:43	10°♏53'07		conjunction	3674 Aug 12 10:25	21°♏37'39	2°33'55
max. Earth dist.	3667 Jul 31 22:37	12°♏31'51	42.42749 AU	minimum elong	3674 Aug 12 10:21	21°♏37'39	2°33'55
				retrograde	3674 Nov 23 00:03	23°♏26'15	
conjunction	3667 Aug 03 06:25	12°♏35'30	0°-6'-7	opposition	3675 Feb 11 02:20	22°♏18'54	2°54'17
minimum elong	3667 Aug 03 06:24	12°♏35'30	0°06'08	min. Earth dist.	3675 Feb 13 09:58	22°♏15'49	38.61523 AU
behind sun begin	3667 Aug 03 00:14	12°♏35'07		direct	3675 May 03 07:21	21°♏10'20	
behind sun end	3667 Aug 03 12:35	12°♏35'52		max. Earth dist.	3675 Aug 11 09:47	22°♏54'56	40.48885 AU
asc. node	3667 Nov 12 05:33	14°♏18'47					
retrograde	3667 Nov 13 18:42	14°♏18'49		conjunction	3675 Aug 14 02:16	22°♏59'23	2°57'39
opposition	3668 Feb 02 10:52	13°♏13'23	0°05'13	minimum elong	3675 Aug 14 02:11	22°♏59'23	2°57'38
min. Earth dist.	3668 Feb 04 12:39	13°♏10'43	40.30761 AU	retrograde	3675 Nov 24 17:28	24°♏48'51	
direct	3668 Apr 23 19:43	12°♏07'03		opposition	3676 Feb 12 16:36	23°♏41'11	3°19'25
max. Earth dist.	3668 Aug 01 10:02	13°♏46'22	42.19016 AU	min. Earth dist.	3676 Feb 15 02:01	23°♏37'59	38.36477 AU
				direct	3676 May 03 18:02	22°♏32'15	
conjunction	3668 Aug 03 19:28	13°♏50'09	0°16'06	max. Earth dist.	3676 Aug 12 02:14	24°♏17'45	40.23625 AU
minimum elong	3668 Aug 03 19:27	13°♏50'09	0°16'05				
	3668 Sep 21 03:29	15°♏		conjunction	3676 Aug 14 18:53	24°♏22'14	3°21'36
retrograde	3668 Nov 14 06:24	15°♏34'08		minimum elong	3676 Aug 14 18:47	24°♏22'14	3°21'35
	3669 Jan 08 07:08	15°♏♏		retrograde	3676 Nov 25 09:47	26°♏12'34	
opposition	3669 Feb 02 22:12	14°♏28'24	0°28'35	opposition	3677 Feb 13 07:07	25°♏04'34	3°44'47
min. Earth dist.	3669 Feb 05 01:37	14°♏25'38	40.06978 AU	min. Earth dist.	3677 Feb 15 17:11	25°♏01'19	38.11174 AU
direct	3669 Apr 25 06:50	13°♏21'45		direct	3677 May 05 07:28	23°♏55'15	
	3669 Aug 01 20:32	15°♏		max. Earth dist.	3677 Aug 13 17:24	25°♏41'33	39.98135 AU
max. Earth dist.	3669 Aug 02 23:52	15°♏01'49	41.95172 AU				
				conjunction	3677 Aug 16 11:48	25°♏46'12	3°45'44
conjunction	3669 Aug 05 09:00	15°♏05'36	0°38'29	minimum elong	3677 Aug 16 11:41	25°♏46'12	3°45'43
minimum elong	3669 Aug 05 08:59	15°♏05'35	0°38'29	retrograde	3677 Nov 27 05:29	27°♏37'24	
retrograde	3669 Nov 15 19:11	16°♏50'16		opposition	3678 Feb 14 22:07	26°♏29'04	4°10'21
opposition	3670 Feb 04 09:54	15°♏44'15	0°52'14	min. Earth dist.	3678 Feb 17 09:00	26°♏25'45	37.85685 AU
min. Earth dist.	3670 Feb 06 13:05	15°♏41'30	39.83096 AU	direct	3678 May 06 21:51	25°♏19'21	
	3670 Mar 13 17:07	15°♏♏		max. Earth dist.	3678 Aug 15 09:56	27°♏06'33	39.72452 AU
direct	3670 Apr 26 17:36	14°♏37'17					
	3670 Jun 09 05:33	15°♏		conjunction	3678 Aug 18 05:11	27°♏11'18	4°10'02
max. Earth dist.	3670 Aug 04 11:46	16°♏17'59	41.71229 AU	minimum elong	3678 Aug 18 05:04	27°♏11'17	4°10'03
				retrograde	3678 Nov 28 23:24	29°♏03'24	
conjunction	3670 Aug 06 22:40	16°♏21'54	1°01'06	opposition	3679 Feb 16 13:40	27°♏54'42	4°36'07
minimum elong	3670 Aug 06 22:39	16°♏21'54	1°01'06	min. Earth dist.	3679 Feb 19 01:55	27°♏51'17	37.60049 AU
retrograde	3670 Nov 17 11:14	18°♏07'19		direct	3679 May 08 14:51	26°♏44'35	
opposition	3671 Feb 05 21:58	17°♏01'02	1°16'09	max. Earth dist.	3679 Aug 17 03:25	28°♏32'44	39.46668 AU
min. Earth dist.	3671 Feb 08 02:17	16°♏58'12	39.59133 AU				
direct	3671 Apr 28 02:54	15°♏53'45		conjunction	3679 Aug 19 22:59	28°♏37'32	4°34'31
max. Earth dist.	3671 Aug 06 01:54	17°♏35'15	41.47178 AU	minimum elong	3679 Aug 19 22:50	28°♏37'32	4°34'30
					3679 Oct 12 17:21	0°♏	
conjunction	3671 Aug 08 12:57	17°♏39'12	1°23'58	retrograde	3679 Nov 30 17:46	0°♏30'33	
minimum elong	3671 Aug 08 12:54	17°♏39'12	1°23'58		3680 Jan 19 08:46	30°♏♏	
retrograde	3671 Nov 19 02:35	19°♏25'22		opposition	3680 Feb 18 05:30	29°♏21'30	5°02'04
opposition	3672 Feb 07 10:27	18°♏18'50	1°40'19	min. Earth dist.	3680 Feb 20 17:24	29°♏18'05	37.34355 AU
min. Earth dist.	3672 Feb 09 15:35	18°♏15'56	39.35049 AU	direct	3680 May 09 07:59	28°♏10'58	
direct	3672 Apr 28 15:17	17°♏11'15			3680 Aug 17 20:08	0°♏	
max. Earth dist.	3672 Aug 06 15:21	18°♏53'30	41.22988 AU	max. Earth dist.	3680 Aug 17 20:12	0°♏00'00	39.20826 AU
conjunction	3672 Aug 09 03:30	18°♏57'34	1°47'04	conjunction	3680 Aug 20 17:16	0°♏04'58	4°59'08
minimum elong	3672 Aug 09 03:27	18°♏57'34	1°47'04	minimum elong	3680 Aug 20 17:07	0°♏04'57	4°59'09
retrograde	3672 Nov 19 19:37	20°♏44'31		retrograde	3680 Dec 01 10:32	1°♏58'57	
opposition	3673 Feb 07 23:15	19°♏37'44	2°04'44	opposition	3681 Feb 18 22:03	0°♏49'32	5°28'11

min. Earth dist.	3681 Feb 21 11:28	0° \mathring{M} 46'00	37.08648 AU	direct	3689 May 22 23:28	12° \mathring{M} 11'40	
	3681 Mar 30 16:24	30° $\mathring{R}\Omega$		max. Earth dist.	3689 Sep 01 13:59	14° \mathring{M} 10'39	36.88337 AU
direct	3681 May 10 22:58	29° \mathring{O} 38'35					
	3681 Jun 20 15:57	0° \mathring{M}		conjunction	3689 Sep 04 17:05	14° \mathring{M} 16'30	8°44'08
max. Earth dist.	3681 Aug 19 15:41	1° \mathring{M} 28'41	38.94992 AU	minimum elong	3689 Sep 04 16:49	14° \mathring{M} 16'29	8°44'08
				retrograde	3689 Dec 16 16:00	16° \mathring{M} 20'25	
conjunction	3681 Aug 22 12:14	1° \mathring{M} 33'39	5°23'53	opposition	3690 Mar 05 04:38	15° \mathring{M} 07'37	9°27'14
minimum elong	3681 Aug 22 12:04	1° \mathring{M} 33'38	5°23'52	min. Earth dist.	3690 Mar 07 23:02	15° \mathring{M} 03'35	34.77809 AU
retrograde	3681 Dec 03 03:56	3° \mathring{M} 28'37		direct	3690 May 24 18:46	13° \mathring{M} 52'45	
opposition	3682 Feb 20 14:59	2° \mathring{M} 18'51	5°54'26	max. Earth dist.	3690 Sep 03 14:37	15° \mathring{M} 53'01	36.62337 AU
min. Earth dist.	3682 Feb 23 04:04	2° \mathring{M} 15'19	36.82978 AU				
direct	3682 May 12 15:01	1° \mathring{M} 07'29		conjunction	3690 Sep 06 17:43	15° \mathring{M} 58'54	9°09'07
max. Earth dist.	3682 Aug 21 09:27	2° \mathring{M} 58'32	38.69209 AU	minimum elong	3690 Sep 06 17:25	15° \mathring{M} 58'53	9°09'07
				retrograde	3690 Dec 18 16:48	18° \mathring{M} 04'02	
conjunction	3682 Aug 24 07:35	3° \mathring{M} 03'40	5°48'44	opposition	3691 Mar 07 03:22	16° \mathring{M} 50'48	9°53'48
minimum elong	3682 Aug 24 07:24	3° \mathring{M} 03'39	5°48'44	min. Earth dist.	3691 Mar 09 22:24	16° \mathring{M} 46'41	34.52097 AU
retrograde	3682 Dec 05 01:26	4° \mathring{M} 59'40		direct	3691 May 26 17:22	15° \mathring{M} 35'26	
opposition	3683 Feb 22 08:34	3° \mathring{M} 49'32	6°20'48	max. Earth dist.	3691 Sep 05 15:18	17° \mathring{M} 36'57	36.36445 AU
min. Earth dist.	3683 Feb 24 22:24	3° \mathring{M} 45'57	36.57388 AU				
direct	3683 May 14 04:32	2° \mathring{M} 37'46		conjunction	3691 Sep 08 18:39	17° \mathring{M} 42'55	9°33'58
max. Earth dist.	3683 Aug 23 05:41	4° \mathring{M} 29'58	38.43479 AU	minimum elong	3691 Sep 08 18:21	17° \mathring{M} 42'54	9°33'58
				retrograde	3691 Dec 20 20:34	19° \mathring{M} 49'17	
conjunction	3683 Aug 26 03:30	4° \mathring{M} 35'06	6°13'40	opposition	3692 Mar 08 02:34	18° \mathring{M} 35'36	10°20'14
minimum elong	3683 Aug 26 03:18	4° \mathring{M} 35'05	6°13'40	min. Earth dist.	3692 Mar 10 21:07	18° \mathring{M} 31'30	34.26539 AU
retrograde	3683 Dec 06 21:57	6° \mathring{M} 32'11		direct	3692 May 27 17:13	17° \mathring{M} 19'44	
opposition	3684 Feb 24 02:46	5° \mathring{M} 21'42	6°47'17	max. Earth dist.	3692 Sep 06 16:37	19° \mathring{M} 22'32	36.10714 AU
min. Earth dist.	3684 Feb 26 17:08	5° \mathring{M} 18'03	36.31842 AU				
direct	3684 May 14 21:28	4° \mathring{M} 09'32		conjunction	3692 Sep 09 20:32	19° \mathring{M} 28'37	9°58'40
max. Earth dist.	3684 Aug 24 01:27	6° \mathring{M} 02'49	38.17783 AU	minimum elong	3692 Sep 09 20:12	19° \mathring{M} 28'35	9°58'40
				retrograde	3692 Dec 21 22:49	21° \mathring{M} 36'13	
conjunction	3684 Aug 27 00:05	6° \mathring{M} 08'04	6°38'41	opposition	3693 Mar 10 02:34	20° \mathring{M} 22'06	10°46'30
minimum elong	3684 Aug 26 23:52	6° \mathring{M} 08'03	6°38'41	min. Earth dist.	3693 Mar 12 22:13	20° \mathring{M} 17'54	34.01198 AU
retrograde	3684 Dec 07 21:49	8° \mathring{M} 06'13		direct	3693 May 29 16:28	19° \mathring{M} 05'44	
opposition	3685 Feb 24 21:18	6° \mathring{M} 55'25	7°13'51	max. Earth dist.	3693 Sep 08 20:03	21° \mathring{M} 09'57	35.85243 AU
min. Earth dist.	3685 Feb 27 11:52	6° \mathring{M} 51'44	36.06318 AU				
direct	3685 May 16 16:44	5° \mathring{M} 42'50		conjunction	3693 Sep 11 23:06	21° \mathring{M} 16'02	10°23'08
max. Earth dist.	3685 Aug 25 21:42	7° \mathring{M} 37'14	37.92044 AU	minimum elong	3693 Sep 11 22:46	21° \mathring{M} 16'00	10°23'07
				retrograde	3693 Dec 24 01:22	23° \mathring{M} 24'56	
conjunction	3685 Aug 28 21:28	7° \mathring{M} 42'36	7°03'45	opposition	3694 Mar 12 03:18	22° \mathring{M} 10'23	11°12'31
minimum elong	3685 Aug 28 21:15	7° \mathring{M} 42'35	7°03'45	min. Earth dist.	3694 Mar 14 21:50	22° \mathring{M} 06'13	33.76155 AU
retrograde	3685 Dec 09 20:53	9° \mathring{M} 41'53		direct	3694 May 31 17:39	20° \mathring{M} 53'33	
opposition	3686 Feb 26 16:47	8° \mathring{M} 30'42	7°40'29	max. Earth dist.	3694 Sep 10 22:14	22° \mathring{M} 59'04	35.60086 AU
min. Earth dist.	3686 Mar 01 08:59	8° \mathring{M} 26'54	35.80743 AU				
direct	3686 May 18 12:03	7° \mathring{M} 17'43		conjunction	3694 Sep 14 02:10	23° \mathring{M} 05'17	10°47'19
max. Earth dist.	3686 Aug 27 19:29	9° \mathring{M} 13'17	37.66236 AU	minimum elong	3694 Sep 14 01:49	23° \mathring{M} 05'15	10°47'19
				retrograde	3694 Dec 26 05:10	25° \mathring{M} 15'31	
conjunction	3686 Aug 30 19:21	9° \mathring{M} 18'43	7°28'51	opposition	3695 Mar 14 04:53	23° \mathring{M} 00'34	11°38'14
minimum elong	3686 Aug 30 19:06	9° \mathring{M} 18'42	7°28'52	min. Earth dist.	3695 Mar 17 00:00	23° \mathring{M} 56'20	33.51466 AU
retrograde	3686 Dec 11 18:18	11° \mathring{M} 19'08		direct	3695 Jun 02 16:23	22° \mathring{M} 43'16	
opposition	3687 Feb 28 12:46	10° \mathring{M} 07'35	8°07'10	max. Earth dist.	3695 Sep 13 03:45	24° \mathring{M} 50'20	35.35291 AU
min. Earth dist.	3687 Mar 03 04:41	10° \mathring{M} 03'46	35.55091 AU				
direct	3687 May 20 08:43	8° \mathring{M} 54'09		conjunction	3695 Sep 16 06:15	24° \mathring{M} 56'29	11°11'12
max. Earth dist.	3687 Aug 29 16:09	10° \mathring{M} 50'46	37.40332 AU	minimum elong	3695 Sep 16 05:55	24° \mathring{M} 56'27	11°11'11
				retrograde	3695 Dec 28 08:48	27° \mathring{M} 08'05	
conjunction	3687 Sep 01 17:54	10° \mathring{M} 56'25	7°53'58	opposition	3696 Mar 15 07:07	25° \mathring{M} 52'44	12°03'36
minimum elong	3687 Sep 01 17:39	10° \mathring{M} 56'24	7°53'58	min. Earth dist.	3696 Mar 18 01:31	25° \mathring{M} 48'31	33.27138 AU
retrograde	3687 Dec 13 16:27	12° \mathring{M} 57'58		direct	3696 Jun 03 16:58	24° \mathring{M} 35'00	
opposition	3688 Mar 01 09:26	11° \mathring{M} 46'02	8°33'52	max. Earth dist.	3696 Sep 14 07:44	26° \mathring{M} 43'27	35.10857 AU
min. Earth dist.	3688 Mar 04 02:57	11° \mathring{M} 42'06	35.29367 AU				
direct	3688 May 21 03:13	10° \mathring{M} 32'08		conjunction	3696 Sep 17 11:01	26° \mathring{M} 49'43	11°34'41
max. Earth dist.	3688 Aug 30 15:47	12° \mathring{M} 30'00	37.14354 AU	minimum elong	3696 Sep 17 10:39	26° \mathring{M} 49'41	11°34'42
				retrograde	3696 Dec 29 15:02	29° \mathring{M} 02'43	
conjunction	3688 Sep 02 17:15	12° \mathring{M} 35'41	8°19'05	opposition	3697 Mar 17 10:12	27° \mathring{M} 47'00	12°28'34
minimum elong	3688 Sep 02 16:58	12° \mathring{M} 35'39	8°19'05	min. Earth dist.	3697 Mar 20 04:45	27° \mathring{M} 42'45	33.03165 AU
retrograde	3688 Dec 14 14:33	14° \mathring{M} 38'24		direct	3697 Jun 05 17:24	26° \mathring{M} 28'49	
opposition	3689 Mar 03 06:46	13° \mathring{M} 26'02	9°00'34	max. Earth dist.	3697 Sep 16 14:20	28° \mathring{M} 38'49	34.86732 AU
min. Earth dist.	3689 Mar 06 00:26	13° \mathring{M} 22'04	35.03583 AU				

conjunction	3697 Sep 19 16:46	28° 11 45'05	11°57'47	conjunction	3705 Oct 07 18:55	15° 15 22'07	14°40'44
minimum elong	3697 Sep 19 16:25	28° 11 45'04	11°57'47	minimum elong	3705 Oct 07 18:35	15° 15 22'05	14°40'44
	3697 Oct 28 20:22	0° 15		retrograde	3706 Jan 19 06:00	17° 17 47'32	
retrograde	3697 Dec 31 20:59	0° 15 59'30		opposition	3706 Apr 06 04:50	16° 16 28'04	15°45'39
	3698 Mar 08 17:15	30° 30 R 11		min. Earth dist.	3706 Apr 08 19:51	16° 16 23'49	31.02825 AU
opposition	3698 Mar 19 14:15	29° 29 43'23	12°53'06	direct	3706 Jun 25 04:04	15° 15 05'41	
min. Earth dist.	3698 Mar 22 09:05	29° 29 39'06	32.79488 AU	max. Earth dist.	3706 Oct 07 10:33	17° 17 29'12	32.85718 AU
direct	3698 Jun 07 20:18	28° 28 24'46					
	3698 Aug 31 17:52	0° 15		conjunction	3706 Oct 10 07:42	17° 17 35'33	14°57'17
max. Earth dist.	3698 Sep 18 20:30	0° 15 36'14	34.62908 AU	minimum elong	3706 Oct 10 07:21	17° 17 35'31	14°57'17
				retrograde	3707 Jan 21 18:03	20° 20 02'18	
conjunction	3698 Sep 21 23:12	0° 15 42'35	12°20'24	opposition	3707 Apr 08 16:37	18° 18 42'27	16°03'00
minimum elong	3698 Sep 21 22:49	0° 15 42'34	12°20'24	min. Earth dist.	3707 Apr 11 06:57	18° 18 38'13	30.83238 AU
retrograde	3699 Jan 03 05:50	2° 2 58'25		direct	3707 Jun 27 14:37	17° 17 19'40	
opposition	3699 Mar 21 19:03	1° 1 41'55	13°17'08	max. Earth dist.	3707 Oct 10 01:13	19° 19 44'41	32.66270 AU
min. Earth dist.	3699 Mar 24 13:10	1° 1 37'39	32.56107 AU				
direct	3699 Jun 09 23:57	0° 15 22'50		conjunction	3707 Oct 12 21:02	19° 19 50'58	15°12'41
max. Earth dist.	3699 Sep 21 03:47	2° 2 35'48	34.39350 AU	minimum elong	3707 Oct 12 20:44	19° 19 50'56	15°12'41
				retrograde	3708 Jan 24 09:26	22° 22 19'02	
conjunction	3699 Sep 24 06:29	2° 2 42'13	12°42'31	opposition	3708 Apr 10 05:06	20° 20 58'50	16°19'07
minimum elong	3699 Sep 24 06:08	2° 2 42'11	12°42'30	min. Earth dist.	3708 Apr 12 17:12	20° 20 54'44	30.64431 AU
retrograde	3700 Jan 05 14:17	4° 4 59'27		direct	3708 Jun 29 02:31	19° 19 35'41	
opposition	3700 Mar 24 00:53	3° 3 42'32	13°40'36	max. Earth dist.	3708 Oct 11 16:57	22° 22 02'13	32.47606 AU
min. Earth dist.	3700 Mar 26 19:51	3° 3 38'11	32.32995 AU				
direct	3700 Jun 12 04:51	2° 2 23'00		conjunction	3708 Oct 14 11:23	22° 22 08'25	15°26'54
max. Earth dist.	3700 Sep 23 12:39	4° 4 37'30	34.16088 AU	minimum elong	3708 Oct 14 11:03	22° 22 08'23	15°26'54
				retrograde	3709 Jan 26 00:19	24° 24 37'48	
conjunction	3700 Sep 26 14:41	4° 4 43'55	13°04'03	opposition	3709 Apr 12 18:29	23° 23 17'17	16°33'55
minimum elong	3700 Sep 26 14:17	4° 4 43'53	13°04'03	min. Earth dist.	3709 Apr 15 06:21	23° 23 13'11	30.46397 AU
retrograde	3701 Jan 08 01:02	7° 7 02'32		direct	3709 Jul 01 14:21	21° 21 53'48	
opposition	3701 Mar 26 07:18	5° 5 45'13	14°03'28	max. Earth dist.	3709 Oct 14 10:09	24° 24 21'53	32.29739 AU
min. Earth dist.	3701 Mar 29 01:14	5° 5 40'54	32.10187 AU				
direct	3701 Jun 14 12:51	4° 4 25'12		conjunction	3709 Oct 17 02:25	24° 24 27'56	15°39'50
max. Earth dist.	3701 Sep 25 21:03	6° 6 41'07	33.93140 AU	minimum elong	3709 Oct 17 02:08	24° 24 27'54	15°39'49
				retrograde	3710 Jan 28 17:42	26° 26 58'35	
conjunction	3701 Sep 28 23:41	6° 6 47'39	13°24'58	opposition	3710 Apr 15 08:47	25° 25 37'47	16°47'20
minimum elong	3701 Sep 28 23:19	6° 6 47'37	13°24'57	min. Earth dist.	3710 Apr 17 18:22	25° 25 33'50	30.29120 AU
retrograde	3702 Jan 10 10:48	9° 9 07'40		direct	3710 Jul 04 05:36	24° 24 14'00	
opposition	3702 Mar 28 14:49	7° 7 49'54	14°25'38	max. Earth dist.	3710 Oct 17 02:40	26° 26 43'28	32.12623 AU
min. Earth dist.	3702 Mar 31 09:28	7° 7 45'31	31.87730 AU				
direct	3702 Jun 16 18:50	6° 6 29'25		conjunction	3710 Oct 19 18:04	26° 26 49'29	15°51'25
max. Earth dist.	3702 Sep 28 08:15	8° 8 46'54	33.70580 AU	minimum elong	3710 Oct 19 17:48	26° 26 49'28	15°51'26
				retrograde	3711 Jan 31 10:28	29° 29 21'23	
conjunction	3702 Oct 01 09:19	8° 8 53'22	13°45'10	opposition	3711 Apr 18 00:00	28° 28 00'18	16°59'17
minimum elong	3702 Oct 01 08:56	8° 8 53'20	13°45'10	min. Earth dist.	3711 Apr 20 09:16	27° 27 56'21	30.12577 AU
retrograde	3703 Jan 12 19:50	11° 11 14'45		direct	3711 Jul 06 19:05	26° 26 36'13	
opposition	3703 Mar 30 23:05	9° 9 56'33	14°47'02	max. Earth dist.	3711 Oct 19 21:47	29° 29 07'11	31.96257 AU
min. Earth dist.	3703 Apr 02 16:29	9° 9 52'13	31.65680 AU				
direct	3703 Jun 19 03:27	8° 8 35'35		conjunction	3711 Oct 22 10:39	29° 29 13'01	16°01'37
max. Earth dist.	3703 Sep 30 18:15	10° 10 54'28	33.48473 AU	minimum elong	3711 Oct 22 10:26	29° 29 12'59	16°01'37
					3711 Nov 12 04:42	0° 0 M	
conjunction	3703 Oct 03 19:44	11° 11 01'02	14°04'35	retrograde	3712 Feb 03 03:47	1° 1 M46'04	
minimum elong	3703 Oct 03 19:22	11° 11 01'00	14°04'35	opposition	3712 Apr 19 15:52	0° 0 M24'44	17°09'43
retrograde	3704 Jan 15 07:01	13° 13 23'46		min. Earth dist.	3712 Apr 21 23:06	0° 0 M20'54	29.96742 AU
opposition	3704 Apr 01 08:02	12° 12 05'09	15°07'33		3712 May 04 17:50	30° 30 R 11	
min. Earth dist.	3704 Apr 04 01:19	12° 12 00'47	31.44131 AU	direct	3712 Jul 08 11:22	29° 29 00'22	
direct	3704 Jun 20 10:03	10° 10 43'41			3712 Sep 08 04:23	0° 0 M	
max. Earth dist.	3704 Oct 02 07:34	13° 13 04'10	33.26901 AU	max. Earth dist.	3712 Oct 21 15:27	1° 1 M32'34	31.80626 AU
conjunction	3704 Oct 05 07:04	13° 13 10'37	14°23'08	conjunction	3712 Oct 24 03:54	1° 1 M38'23	16°10'22
minimum elong	3704 Oct 05 06:42	13° 13 10'35	14°23'09	minimum elong	3712 Oct 24 03:40	1° 1 M38'22	16°10'22
retrograde	3705 Jan 16 17:28	15° 15 34'42		retrograde	3713 Feb 04 22:56	4° 4 M12'34	
opposition	3705 Apr 03 18:04	14° 14 15'39	15°27'08	opposition	3713 Apr 22 08:41	2° 2 M50'57	17°18'33
min. Earth dist.	3705 Apr 06 10:26	14° 14 11'19	31.23143 AU	min. Earth dist.	3713 Apr 24 14:58	2° 2 M47'11	29.81639 AU
direct	3705 Jun 22 18:38	12° 12 53'43		direct	3713 Jul 11 02:20	1° 1 M26'19	
max. Earth dist.	3705 Oct 04 19:50	15° 15 15'38	33.05956 AU	max. Earth dist.	3713 Oct 24 12:14	3° 3 M59'54	31.65755 AU

conjunction	3713 Oct 26 21:46	4°M05'29	16°17'35	conjunction	3721 Nov 16 10:39	24°M26'02	16°13'11
minimum elong	3713 Oct 26 21:36	4°M05'28	16°17'35	minimum elong	3721 Nov 16 10:45	24°M26'03	16°13'11
retrograde	3714 Feb 07 16:00	6°M40'41		retrograde	3722 Feb 28 04:53	27°M06'27	
opposition	3714 Apr 25 02:16	5°M18'50	17°25'44	opposition	3722 May 15 18:05	25°M43'14	17°15'16
min. Earth dist.	3714 Apr 27 06:52	5°M15'09	29.67271 AU	min. Earth dist.	3722 May 17 04:25	25°M40'48	28.86366 AU
direct	3714 Jul 13 19:28	3°M53'56		direct	3722 Aug 03 08:47	24°M17'07	
max. Earth dist.	3714 Oct 27 07:23	6°M28'36	31.51684 AU	max. Earth dist.	3722 Nov 17 21:30	26°M58'48	30.75239 AU
conjunction	3714 Oct 29 16:05	6°M34'09	16°23'13	conjunction	3722 Nov 19 07:23	27°M02'13	16°04'13
minimum elong	3714 Oct 29 15:55	6°M34'08	16°23'14	minimum elong	3722 Nov 19 07:32	27°M02'14	16°04'14
retrograde	3715 Feb 10 10:53	9°M10'18		retrograde	3723 Mar 03 01:43	29°M42'52	
opposition	3715 Apr 27 20:21	7°M48'12	17°31'11	opposition	3723 May 18 15:42	28°M19'38	17°04'50
min. Earth dist.	3715 Apr 29 23:09	7°M44'39	29.53712 AU	min. Earth dist.	3723 May 19 22:51	28°M17'26	28.81154 AU
direct	3715 Jul 16 12:34	6°M23'02		direct	3723 Aug 06 07:24	26°M53'33	
max. Earth dist.	3715 Oct 30 05:22	8°M58'57	31.38459 AU	max. Earth dist.	3723 Nov 20 20:10	29°M35'33	30.70748 AU
conjunction	3715 Nov 01 10:59	9°M04'13	16°27'12	conjunction	3723 Nov 22 04:05	29°M38'46	15°53'22
minimum elong	3715 Nov 01 10:53	9°M04'12	16°27'12	minimum elong	3723 Nov 22 04:16	29°M38'47	15°53'22
retrograde	3716 Feb 13 04:35	11°M41'14			3723 Nov 30 22:47	0° 2	
opposition	3716 Apr 29 15:12	10°M18'54	17°34'49	retrograde	3724 Mar 04 23:59	2° 2 19'34	
min. Earth dist.	3716 May 01 16:39	10°M15'25	29.40987 AU	opposition	3724 May 20 13:39	0° 2 56'20	16°52'23
direct	3716 Jul 18 06:24	8°M53'29		min. Earth dist.	3724 May 21 18:28	0° 2 54'18	28.77006 AU
max. Earth dist.	3716 Nov 01 02:02	11°M30'22	31.26148 AU		3724 Jun 25 19:12	30°RM	
conjunction	3716 Nov 03 06:10	11°M35'31	16°29'28	direct	3724 Aug 08 05:11	29°M30'17	
minimum elong	3716 Nov 03 06:05	11°M35'31	16°29'29		3724 Sep 19 06:43	0° 2	
retrograde	3717 Feb 15 00:45	14°M13'19		max. Earth dist.	3724 Nov 22 20:57	2° 2 12'42	30.67328 AU
opposition	3717 May 02 10:25	12°M50'45	17°36'35	conjunction	3724 Nov 24 00:55	2° 2 15'31	15°40'40
min. Earth dist.	3717 May 04 09:03	12°M47'28	29.29189 AU	minimum elong	3724 Nov 24 01:09	2° 2 15'33	15°40'40
direct	3717 Jul 21 00:41	11°M25'07		retrograde	3725 Mar 07 20:05	4° 2 56'21	
max. Earth dist.	3717 Nov 04 00:50	14°M03'03	31.14822 AU	opposition	3725 May 23 11:47	3° 2 33'07	16°37'57
conjunction	3717 Nov 06 01:51	14°M07'55	16°29'58	min. Earth dist.	3725 May 24 14:02	3° 2 31'16	28.73874 AU
minimum elong	3717 Nov 06 01:48	14°M07'55	16°29'57	direct	3725 Aug 11 04:51	2° 2 07'09	
	3717 Nov 28 07:30	15°M		conjunction	3725 Nov 26 21:34	4° 2 52'15	15°26'09
retrograde	3718 Feb 17 18:28	16°M46'24		minimum elong	3725 Nov 26 21:49	4° 2 52'17	15°26'08
opposition	3718 May 05 06:26	15°M23'38	17°36'24	max. Earth dist.	3725 Nov 25 19:26	4° 2 49'37	30.64958 AU
min. Earth dist.	3718 May 07 03:34	15°M20'27	29.18392 AU	retrograde	3726 Mar 10 17:15	7° 2 33'00	
	3718 May 19 09:38	15°RM		opposition	3726 May 26 09:56	6° 2 09'47	16°21'33
direct	3718 Jul 23 20:30	13°M57'49		min. Earth dist.	3726 May 27 09:09	6° 2 08'09	28.71776 AU
	3718 Sep 24 03:47	15°M		direct	3726 Aug 14 02:52	4° 2 43'54	
max. Earth dist.	3718 Nov 06 23:06	16°M36'37	31.04585 AU	conjunction	3726 Nov 29 18:07	7° 2 28'46	15°09'51
conjunction	3718 Nov 08 21:31	16°M41'15	16°28'37	minimum elong	3726 Nov 29 18:24	7° 2 28'48	15°09'51
minimum elong	3718 Nov 08 21:31	16°M41'15	16°28'37	max. Earth dist.	3726 Nov 28 20:01	7° 2 26'32	30.63633 AU
retrograde	3719 Feb 20 15:10	19°M20'21		retrograde	3727 Mar 13 12:32	10° 2 09'19	
opposition	3719 May 08 02:43	17°M57'24	17°34'12	opposition	3727 May 29 08:06	8° 2 46'08	16°03'16
min. Earth dist.	3719 May 09 20:17	17°M54'28	29.08680 AU	min. Earth dist.	3727 May 30 05:10	8° 2 44'39	28.70683 AU
direct	3719 Jul 26 17:35	16°M31'26		direct	3727 Aug 17 01:55	7° 2 20'20	
max. Earth dist.	3719 Nov 09 22:17	19°M11'06	30.95483 AU	conjunction	3727 Dec 02 14:24	10° 2 04'50	14°51'49
conjunction	3719 Nov 11 17:45	19°M15'27	16°25'23	minimum elong	3727 Dec 02 14:41	10° 2 04'52	14°51'48
minimum elong	3719 Nov 11 17:47	19°M15'27	16°25'22	max. Earth dist.	3727 Dec 01 18:08	10° 2 02'48	30.63354 AU
retrograde	3720 Feb 23 10:35	21°M55'04		retrograde	3728 Mar 15 09:26	12° 2 45'06	
opposition	3720 May 09 23:26	20°M31'59	17°29'58	opposition	3728 May 31 05:53	11° 2 21'58	15°43'08
min. Earth dist.	3720 May 11 15:23	20°M29'10	29.00100 AU	min. Earth dist.	3728 May 31 23:21	11° 2 20'44	28.70625 AU
direct	3720 Jul 28 12:42	19°M05'55		direct	3728 Aug 19 00:17	9° 2 56'15	
max. Earth dist.	3720 Nov 11 22:01	21°M46'22	30.87574 AU	conjunction	3728 Dec 04 10:31	12° 2 40'17	14°32'06
conjunction	3720 Nov 13 14:11	21°M50'24	16°20'14	minimum elong	3728 Dec 04 10:51	12° 2 40'19	14°32'06
minimum elong	3720 Nov 13 14:15	21°M50'24	16°20'15	max. Earth dist.	3728 Dec 03 18:10	12° 2 38'38	30.64134 AU
retrograde	3721 Feb 25 07:54	24°M30'28		retrograde	3729 Mar 18 02:44	15° 2 20'08	
opposition	3721 May 12 20:32	23°M07'18	17°23'39	opposition	3729 Jun 03 03:47	13° 2 57'04	15°21'11
min. Earth dist.	3721 May 14 08:51	23°M04'44	28.92665 AU	min. Earth dist.	3729 Jun 03 19:20	13° 2 55'59	28.71624 AU
direct	3721 Jul 31 11:40	21°M41'12		direct	3729 Aug 21 22:34	12° 2 31'29	
max. Earth dist.	3721 Nov 14 21:03	24°M22'15	30.80829 AU	conjunction	3729 Dec 07 05:55	15° 2 14'55	14°10'44

minimum elong	3729 Dec 07 06:14	15° $\overline{\text{A}}$ 14'57	14°10'44	minimum elong	3737 Dec 27 00:18	5° $\overline{\text{B}}$ 12'28	10°29'49
max. Earth dist.	3729 Dec 06 16:07	15° $\overline{\text{A}}$ 13'32	30.66026 AU	max. Earth dist.	3737 Dec 27 12:54	5° $\overline{\text{B}}$ 13'41	31.23365 AU
retrograde	3730 Mar 20 22:01	17° $\overline{\text{A}}$ 54'17		retrograde	3738 Apr 09 12:08	7° $\overline{\text{B}}$ 45'36	
opposition	3730 Jun 06 01:15	16° $\overline{\text{A}}$ 31'17	14°57'30	opposition	3738 Jun 26 14:24	6° $\overline{\text{B}}$ 24'18	10°55'33
min. Earth dist.	3730 Jun 06 12:39	16° $\overline{\text{A}}$ 30'29	28.73741 AU	min. Earth dist.	3738 Jun 26 01:44	6° $\overline{\text{B}}$ 25'09	29.32526 AU
direct	3730 Aug 24 21:16	15° $\overline{\text{A}}$ 05'51		direct	3738 Sep 14 17:41	5° $\overline{\text{B}}$ 01'15	
conjunction	3730 Dec 10 01:04	17° $\overline{\text{A}}$ 48'36	13°47'48	conjunction	3738 Dec 29 14:31	7° $\overline{\text{B}}$ 36'09	9°57'25
minimum elong	3730 Dec 10 01:26	17° $\overline{\text{A}}$ 48'38	13°47'48	minimum elong	3738 Dec 29 14:53	7° $\overline{\text{B}}$ 36'11	9°57'25
max. Earth dist.	3730 Dec 09 15:11	17° $\overline{\text{A}}$ 47'37	30.69067 AU	max. Earth dist.	3738 Dec 30 05:05	7° $\overline{\text{B}}$ 37'33	31.35241 AU
retrograde	3731 Mar 23 15:18	20° $\overline{\text{A}}$ 27'24		retrograde	3739 Apr 12 03:53	10° $\overline{\text{B}}$ 08'17	
opposition	3731 Jun 08 22:24	19° $\overline{\text{A}}$ 04'30	14°32'08	opposition	3739 Jun 29 07:27	8° $\overline{\text{B}}$ 47'15	10°20'25
min. Earth dist.	3731 Jun 09 07:39	19° $\overline{\text{A}}$ 03'51	28.77032 AU	min. Earth dist.	3739 Jun 28 15:16	8° $\overline{\text{B}}$ 48'20	29.44478 AU
direct	3731 Aug 27 17:16	17° $\overline{\text{A}}$ 39'14		direct	3739 Sep 17 12:30	7° $\overline{\text{B}}$ 24'32	
conjunction	3731 Dec 12 19:40	20° $\overline{\text{A}}$ 21'14	13°23'21	conjunction	3740 Jan 01 04:36	9° $\overline{\text{B}}$ 58'12	9°24'18
minimum elong	3731 Dec 12 20:02	20° $\overline{\text{A}}$ 21'17	13°23'21	minimum elong	3740 Jan 01 04:57	9° $\overline{\text{B}}$ 58'14	9°24'19
max. Earth dist.	3731 Dec 12 12:59	20° $\overline{\text{A}}$ 20'34	30.73329 AU	max. Earth dist.	3740 Jan 01 22:38	9° $\overline{\text{B}}$ 59'56	31.47969 AU
retrograde	3732 Mar 25 09:12	22° $\overline{\text{A}}$ 59'24		retrograde	3740 Apr 13 15:30	12° $\overline{\text{B}}$ 29'16	
opposition	3732 Jun 10 19:08	21° $\overline{\text{A}}$ 36'39	14°05'10	min. Earth dist.	3740 Jun 30 06:27	11° $\overline{\text{B}}$ 09'41	29.57273 AU
min. Earth dist.	3732 Jun 11 00:02	21° $\overline{\text{A}}$ 36'19	28.81531 AU	opposition	3740 Jul 01 00:10	11° $\overline{\text{B}}$ 08'30	9°44'34
direct	3732 Aug 29 16:22	20° $\overline{\text{A}}$ 11'37		direct	3740 Sep 19 06:22	9° $\overline{\text{B}}$ 46'08	
conjunction	3732 Dec 14 13:45	22° $\overline{\text{A}}$ 52'47	12°57'27	conjunction	3741 Jan 02 17:44	12° $\overline{\text{B}}$ 18'30	8°50'34
minimum elong	3732 Dec 14 14:09	22° $\overline{\text{A}}$ 52'50	12°57'27	minimum elong	3741 Jan 02 18:05	12° $\overline{\text{B}}$ 18'32	8°50'34
max. Earth dist.	3732 Dec 14 10:28	22° $\overline{\text{A}}$ 52'28	30.78810 AU	max. Earth dist.	3741 Jan 03 13:35	12° $\overline{\text{B}}$ 20'23	31.61523 AU
retrograde	3733 Mar 28 02:31	25° $\overline{\text{A}}$ 30'16		retrograde	3741 Apr 16 03:19	14° $\overline{\text{B}}$ 48'26	
opposition	3733 Jun 13 15:37	24° $\overline{\text{A}}$ 07'41	13°36'41	opposition	3741 Jul 03 16:02	13° $\overline{\text{B}}$ 27'56	9°08'07
min. Earth dist.	3733 Jun 13 17:52	24° $\overline{\text{A}}$ 07'32	28.87256 AU	min. Earth dist.	3741 Jul 02 18:39	13° $\overline{\text{B}}$ 29'21	29.70898 AU
direct	3733 Sep 01 12:25	22° $\overline{\text{A}}$ 42'56		direct	3741 Sep 21 23:58	12° $\overline{\text{B}}$ 05'54	
conjunction	3733 Dec 17 07:22	25° $\overline{\text{A}}$ 23'13	12°30'12	conjunction	3742 Jan 05 06:13	14° $\overline{\text{B}}$ 36'55	8°16'19
minimum elong	3733 Dec 17 07:44	25° $\overline{\text{A}}$ 23'15	12°30'12	minimum elong	3742 Jan 05 06:32	14° $\overline{\text{B}}$ 36'57	8°16'20
max. Earth dist.	3733 Dec 17 07:46	25° $\overline{\text{A}}$ 23'15	30.85526 AU	max. Earth dist.	3742 Jan 06 05:13	14° $\overline{\text{B}}$ 39'06	31.75890 AU
retrograde	3734 Mar 30 19:35	27° $\overline{\text{A}}$ 59'56		retrograde	3742 Apr 18 14:00	17° $\overline{\text{B}}$ 05'43	
opposition	3734 Jun 16 11:32	26° $\overline{\text{A}}$ 37'35	13°06'48	min. Earth dist.	3742 Jul 05 08:08	15° $\overline{\text{B}}$ 46'59	29.85374 AU
min. Earth dist.	3734 Jun 16 09:58	26° $\overline{\text{A}}$ 37'42	28.94171 AU	opposition	3742 Jul 06 07:16	15° $\overline{\text{B}}$ 45'27	8°31'10
direct	3734 Sep 04 09:46	25° $\overline{\text{A}}$ 13'08		direct	3742 Sep 24 14:58	14° $\overline{\text{B}}$ 23'46	
conjunction	3734 Dec 20 00:16	27° $\overline{\text{A}}$ 52'28	12°01'42	conjunction	3743 Jan 07 17:49	16° $\overline{\text{B}}$ 53'25	7°41'37
minimum elong	3734 Dec 20 00:40	27° $\overline{\text{A}}$ 52'30	12°01'42	minimum elong	3743 Jan 07 18:08	16° $\overline{\text{B}}$ 53'26	7°41'37
max. Earth dist.	3734 Dec 20 03:24	27° $\overline{\text{A}}$ 52'46	30.93404 AU	max. Earth dist.	3743 Jan 08 19:18	16° $\overline{\text{B}}$ 55'48	31.91108 AU
retrograde	3735 Feb 20 23:17	0° $\overline{\text{B}}$		retrograde	3743 Apr 21 00:07	19° $\overline{\text{B}}$ 21'01	
opposition	3735 Apr 02 13:15	0° $\overline{\text{B}}$ 28'24		opposition	3743 Jul 08 21:37	18° $\overline{\text{B}}$ 01'02	7°53'48
min. Earth dist.	3735 May 14 18:41	30° $\overline{\text{R}}$ $\overline{\text{A}}$		min. Earth dist.	3743 Jul 07 19:04	18° $\overline{\text{B}}$ 02'47	30.00714 AU
direct	3735 Jun 19 07:01	29° $\overline{\text{A}}$ 06'17	12°35'37	direct	3743 Sep 27 07:18	16° $\overline{\text{B}}$ 39'41	
conjunction	3735 Jun 19 02:36	29° $\overline{\text{A}}$ 06'36	29.02230 AU	conjunction	3744 Jan 10 04:38	19° $\overline{\text{B}}$ 07'57	7°06'34
direct	3735 Sep 07 05:12	27° $\overline{\text{A}}$ 42'10		minimum elong	3744 Jan 10 04:55	19° $\overline{\text{B}}$ 07'59	7°06'34
conjunction	3735 Dec 13 23:34	0° $\overline{\text{B}}$		max. Earth dist.	3744 Jan 11 08:38	19° $\overline{\text{B}}$ 10'34	32.07179 AU
minimum elong	3735 Dec 22 16:49	0° $\overline{\text{B}}$ 20'29	11°32'04	retrograde	3744 Apr 22 10:04	21° $\overline{\text{B}}$ 34'24	
max. Earth dist.	3735 Dec 22 17:11	0° $\overline{\text{B}}$ 20'31	11°32'04	min. Earth dist.	3744 Jul 09 06:20	20° $\overline{\text{B}}$ 16'34	30.16967 AU
retrograde	3735 Dec 22 23:51	0° $\overline{\text{B}}$ 21'11	31.02386 AU	opposition	3744 Jul 10 11:20	20° $\overline{\text{B}}$ 14'40	7°16'07
opposition	3736 Apr 04 05:39	2° $\overline{\text{B}}$ 55'33		direct	3744 Sep 28 20:51	18° $\overline{\text{B}}$ 53'42	
min. Earth dist.	3736 Jun 21 01:55	1° $\overline{\text{B}}$ 33'42	12°03'16	conjunction	3745 Jan 11 14:51	21° $\overline{\text{B}}$ 20'37	6°31'14
direct	3736 Jun 20 18:41	1° $\overline{\text{B}}$ 34'12	29.11341 AU	minimum elong	3745 Jan 11 15:07	21° $\overline{\text{B}}$ 20'38	6°31'14
conjunction	3736 Sep 09 03:02	0° $\overline{\text{B}}$ 09'56		max. Earth dist.	3745 Jan 12 22:05	21° $\overline{\text{B}}$ 23'30	32.24158 AU
minimum elong	3736 Dec 24 08:39	2° $\overline{\text{B}}$ 47'10	11°01'24	retrograde	3745 Apr 24 19:12	23° $\overline{\text{B}}$ 45'52	
max. Earth dist.	3736 Dec 24 09:03	2° $\overline{\text{B}}$ 47'13	11°01'24	min. Earth dist.	3745 Jul 11 16:33	22° $\overline{\text{B}}$ 28'32	30.34123 AU
retrograde	3736 Dec 24 17:45	2° $\overline{\text{B}}$ 48'04	31.12392 AU	opposition	3745 Jul 13 00:21	22° $\overline{\text{B}}$ 26'27	6°38'11
opposition	3737 Apr 06 21:53	5° $\overline{\text{B}}$ 21'20		direct	3745 Oct 01 11:11	21° $\overline{\text{B}}$ 05'52	
min. Earth dist.	3737 Jun 23 20:25	3° $\overline{\text{B}}$ 59'45	11°29'52	conjunction	3746 Jan 14 00:04	23° $\overline{\text{B}}$ 31'26	5°55'42
direct	3737 Jun 23 09:49	4° $\overline{\text{B}}$ 00'28	29.21468 AU	minimum elong	3746 Jan 14 00:18	23° $\overline{\text{B}}$ 31'27	5°55'43
conjunction	3737 Sep 11 21:31	2° $\overline{\text{B}}$ 36'20		max. Earth dist.	3746 Jan 15 09:15	23° $\overline{\text{B}}$ 34'29	32.42009 AU
retrograde	3737 Dec 26 23:55	5° $\overline{\text{B}}$ 12'26	10°29'49	retrograde	3746 Apr 27 05:18	25° $\overline{\text{B}}$ 55'33	

min. Earth dist.	3746 Jul 14 01:40	24°38'43	30.52172 AU	max. Earth dist.	3754 Feb 01 04:14	10°02'17	34.08130 AU
opposition	3746 Jul 15 12:36	24°36'27	6°00'07	retrograde	3754 May 13 04:15	12°13'04	
direct	3746 Oct 03 22:49	23°16'17		min. Earth dist.	3754 Jul 30 11:35	10°59'50	32.19325 AU
				opposition	3754 Aug 01 13:19	10°56'46	1°00'05
conjunction	3747 Jan 16 08:52	25°40'31	5°20'04	direct	3754 Oct 21 06:37	9°40'01	
minimum elong	3747 Jan 16 09:06	25°40'32	5°20'04				
max. Earth dist.	3747 Jan 17 21:32	25°43'51	32.60697 AU	conjunction	3755 Feb 01 06:13	11°53'49	0°39'35
retrograde	3747 Apr 29 13:25	28°03'28		minimum elong	3755 Feb 01 06:14	11°53'49	0°39'35
min. Earth dist.	3747 Jul 16 11:19	26°47'06	30.71028 AU	max. Earth dist.	3755 Feb 03 08:07	11°58'05	34.30833 AU
opposition	3747 Jul 17 23:59	26°44'44	5°22'00	retrograde	3755 May 15 08:20	14°07'43	
direct	3747 Oct 06 12:42	25°25'01		min. Earth dist.	3755 Aug 01 14:56	12°54'55	32.42199 AU
				opposition	3755 Aug 03 19:03	12°51'43	0°24'05
conjunction	3748 Jan 18 16:49	27°47'55	4°44'24	direct	3755 Oct 23 11:44	11°35'20	
minimum elong	3748 Jan 18 17:00	27°47'56	4°44'25				
max. Earth dist.	3748 Jan 20 06:42	27°51'21	32.80137 AU	conjunction	3756 Feb 03 08:54	13°47'52	0°05'59
	3748 Apr 06 03:23	0°		minimum elong	3756 Feb 03 08:54	13°47'52	0°05'59
retrograde	3748 Apr 30 23:08	0°09'43		behind sun begin	3756 Feb 03 02:49	13°47'23	
	3748 May 26 03:35	30°R		behind sun end	3756 Feb 03 14:59	13°48'21	
min. Earth dist.	3748 Jul 17 18:51	28°53'55	30.90628 AU	max. Earth dist.	3756 Feb 05 13:30	13°52'20	34.53928 AU
opposition	3748 Jul 19 10:47	28°51'21	4°43'55		3756 Mar 11 18:54	15°	
direct	3748 Oct 08 00:28	27°32'05		desc. node	3756 Apr 08 08:15	15°39'17	
				retrograde	3756 May 16 10:13	16°00'39	
conjunction	3749 Jan 20 00:06	29°53'41	4°08'47		3756 Jul 25 16:23	15°R	
minimum elong	3749 Jan 20 00:16	29°53'42	4°08'47	min. Earth dist.	3756 Aug 02 19:28	14°48'10	32.65498 AU
max. Earth dist.	3749 Jan 21 17:10	29°57'22	33.00245 AU	opposition	3756 Aug 05 00:20	14°44'57	0°-11'-24
	3749 Jan 22 22:33	0°		direct	3756 Oct 24 19:36	13°28'56	
retrograde	3749 May 03 04:59	2°14'21			3757 Jan 15 05:48	15°	
min. Earth dist.	3749 Jul 20 04:04	0°58'58	31.10879 AU				
opposition	3749 Jul 21 21:04	0°56'22	4°05'56	conjunction	3757 Feb 04 10:41	15°40'13	0°-27'-18
	3749 Aug 31 22:29	30°R		minimum elong	3757 Feb 04 10:40	15°40'13	0°27'19
direct	3749 Oct 10 11:44	29°37'33		max. Earth dist.	3757 Feb 06 16:00	15°44'42	34.77451 AU
	3749 Nov 17 16:52	0°		retrograde	3757 May 18 13:17	17°51'54	
conjunction	3750 Jan 22 06:45	1°57'50	3°33'17	min. Earth dist.	3757 Aug 04 21:09	16°39'53	32.89255 AU
minimum elong	3750 Jan 22 06:54	1°57'51	3°33'18	opposition	3757 Aug 07 04:52	16°36'30	0°-46'-23
max. Earth dist.	3750 Jan 24 00:59	2°01'35	33.20946 AU	direct	3757 Oct 27 01:42	15°20'52	
retrograde	3750 May 05 10:51	4°17'22					
min. Earth dist.	3750 Jul 22 10:27	3°02'31	31.31700 AU	conjunction	3758 Feb 06 12:04	17°30'57	-1°00'-1
opposition	3750 Jul 24 06:22	2°59'45	3°28'09	minimum elong	3758 Feb 06 12:01	17°30'57	1°00'02
direct	3750 Oct 12 22:38	1°41'22		max. Earth dist.	3758 Feb 08 19:47	17°35'36	35.01405 AU
				retrograde	3758 May 20 13:06	19°41'34	
conjunction	3751 Jan 24 12:47	4°00'22	2°57'58	min. Earth dist.	3758 Aug 07 00:18	18°29'54	33.13463 AU
minimum elong	3751 Jan 24 12:55	4°00'23	2°57'58	opposition	3758 Aug 09 08:43	18°26'30	-1°-20'-49
max. Earth dist.	3751 Jan 26 09:18	4°04'18	33.42142 AU	direct	3758 Oct 29 06:24	17°11'15	
retrograde	3751 May 07 15:46	6°18'47					
min. Earth dist.	3751 Jul 24 18:17	5°04'20	31.53013 AU	conjunction	3759 Feb 08 12:48	19°20'09	-1°-32'-14
opposition	3751 Jul 26 15:12	5°01'31	2°50'37	minimum elong	3759 Feb 08 12:45	19°20'09	1°32'15
direct	3751 Oct 15 07:17	3°43'35		max. Earth dist.	3759 Feb 10 21:42	19°24'52	35.25783 AU
				retrograde	3759 May 22 11:33	21°29'44	
conjunction	3752 Jan 26 18:11	6°01'16	2°22'54	min. Earth dist.	3759 Aug 09 01:12	20°18'32	33.38067 AU
minimum elong	3752 Jan 26 18:17	6°01'16	2°22'54	opposition	3759 Aug 11 11:52	20°15'00	-1°-54'-40
max. Earth dist.	3752 Jan 28 16:07	6°05'18	33.63774 AU	direct	3759 Oct 31 11:35	19°00'09	
retrograde	3752 May 08 19:51	8°18'33					
min. Earth dist.	3752 Jul 26 00:10	7°04'35	31.74735 AU	conjunction	3760 Feb 10 12:51	21°07'54	-2°-3'-55
opposition	3752 Jul 27 23:12	7°01'38	2°13'24	minimum elong	3760 Feb 10 12:47	21°07'53	2°03'56
direct	3752 Oct 16 16:49	5°44'07		max. Earth dist.	3760 Feb 12 23:07	21°12'42	35.50503 AU
				retrograde	3760 May 23 11:21	23°16'29	
conjunction	3753 Jan 27 22:54	8°00'30	1°48'06	min. Earth dist.	3760 Aug 10 02:41	22°05'39	33.63022 AU
minimum elong	3753 Jan 27 22:58	8°00'30	1°48'07	opposition	3760 Aug 12 14:35	22°02'04	-2°-27'-54
max. Earth dist.	3753 Jan 29 22:00	8°04'36	33.85771 AU	direct	3760 Nov 01 13:32	20°47'38	
retrograde	3753 May 11 00:47	10°16'40					
min. Earth dist.	3753 Jul 28 06:06	9°03'05	31.96852 AU	conjunction	3761 Feb 11 12:33	22°54'15	-2°-35'-2
opposition	3753 Jul 30 06:41	9°00'04	1°36'32	minimum elong	3761 Feb 11 12:27	22°54'14	2°35'03
direct	3753 Oct 18 23:18	7°42'57		max. Earth dist.	3761 Feb 14 00:35	22°59'09	35.75528 AU
				retrograde	3761 May 25 09:59	25°01'51	
conjunction	3754 Jan 30 02:56	9°58'02	1°13'39	min. Earth dist.	3761 Aug 12 03:49	23°51'24	33.88242 AU
minimum elong	3754 Jan 30 02:59	9°58'02	1°13'40	opposition	3761 Aug 14 16:40	23°47'47	-3°00'-30
				direct	3761 Nov 03 16:25	22°33'44	

conjunction	3762 Feb 13 11:31	24° 39 '14	-3°-5'-35	direct	3769 Nov 17 14:46	5° 54 '20	
minimum elong	3762 Feb 13 11:25	24° 39 '14	3°05'36				
max. Earth dist.	3762 Feb 15 23:49	24° 44 '08	36.00763 AU	conjunction	3770 Feb 26 10:27	7° 51 '42	-6°-47'-55
retrograde	3762 May 27 11:04	26° 45 '53		minimum elong	3770 Feb 26 10:15	7° 51 '41	6°47'56
min. Earth dist.	3762 Aug 14 03:38	25° 35 '50	34.13666 AU	max. Earth dist.	3770 Mar 01 05:49	7° 56 '51	38.04501 AU
opposition	3762 Aug 16 18:10	25° 32 '09	-3°-32'-27	retrograde	3770 Jun 09 09:13	9° 51 '04	
direct	3762 Nov 05 16:29	24° 18 '29		min. Earth dist.	3770 Aug 27 14:21	8° 43 '26	36.18842 AU
				opposition	3770 Aug 30 10:03	8° 39 '36	-7°-23'-45
conjunction	3763 Feb 15 10:16	26° 22 '56	-3°-35'-32	direct	3770 Nov 19 11:23	7° 28 '37	
minimum elong	3763 Feb 15 10:08	26° 22 '55	3°35'32				
max. Earth dist.	3763 Feb 18 00:30	26° 27 '56	36.26137 AU	conjunction	3771 Feb 28 05:03	9° 25 '04	-7°-12'-50
retrograde	3763 May 29 10:00	28° 28 '37		minimum elong	3771 Feb 28 04:51	9° 25 '03	7°12'50
min. Earth dist.	3763 Aug 16 04:37	27° 18 '52	34.39196 AU	max. Earth dist.	3771 Mar 03 00:20	9° 30 '11	38.30271 AU
opposition	3763 Aug 18 19:01	27° 15 '12	-4°-3'-44	retrograde	3771 Jun 11 03:48	11° 23 '38	
direct	3763 Nov 07 17:51	26° 01 '55		min. Earth dist.	3771 Aug 29 08:51	10° 16 '23	36.44850 AU
				opposition	3771 Sep 01 06:26	10° 12 '27	-7°-49'-31
conjunction	3764 Feb 17 08:24	28° 05 '18	-4°-4'-53	direct	3771 Nov 21 08:05	9° 01 '49	
minimum elong	3764 Feb 17 08:16	28° 05 '17	4°04'54				
max. Earth dist.	3764 Feb 19 22:22	28° 10 '15	36.51580 AU	conjunction	3772 Feb 29 23:16	10° 57 '24	-7°-37'-6
	3764 May 03 12:56	0° 10 '02		minimum elong	3772 Feb 29 23:04	10° 57 '23	7°37'07
retrograde	3764 May 30 09:33	0° 10 '02		max. Earth dist.	3772 Mar 03 19:51	11° 02 '34	38.56131 AU
	3764 Jun 26 15:28	30° 00 '41		retrograde	3772 Jun 11 20:41	12° 55 '11	
min. Earth dist.	3764 Aug 17 03:11	29° 00 '41	34.64780 AU	min. Earth dist.	3772 Aug 30 05:12	11° 48 '12	36.70946 AU
opposition	3764 Aug 19 19:25	28° 56 '56	-4°-34'-22	opposition	3772 Sep 02 02:41	11° 44 '18	-8°-14'-35
direct	3764 Nov 08 17:55	27° 44 '01		direct	3772 Nov 22 06:01	10° 34 '00	
conjunction	3765 Feb 18 06:00	29° 46 '21	-4°-33'-37	conjunction	3773 Mar 02 17:01	12° 28 '44	-8°00'-43
minimum elong	3765 Feb 18 05:51	29° 46 '21	4°33'37	minimum elong	3773 Mar 02 16:49	12° 28 '43	8°00'43
max. Earth dist.	3765 Feb 20 21:20	29° 51 '22	36.77028 AU	max. Earth dist.	3773 Mar 05 14:12	12° 33 '56	38.82053 AU
	3765 Feb 25 10:26	0° 50 '10		retrograde	3773 Jun 13 12:29	14° 25 '46	
retrograde	3765 Jun 01 05:28	1° 50 '10		min. Earth dist.	3773 Aug 31 23:56	13° 19 '07	36.97061 AU
min. Earth dist.	3765 Aug 19 03:29	0° 41 '04	34.90369 AU	opposition	3773 Sep 03 22:20	13° 15 '11	-8°-38'-57
opposition	3765 Aug 21 19:25	0° 37 '21	-5°-4'-19	direct	3773 Nov 24 03:48	12° 05 '14	
	3765 Sep 18 21:08	30° 24 '47					
direct	3765 Nov 10 19:42	29° 24 '47		conjunction	3774 Mar 04 10:26	13° 59 '08	-8°-23'-42
	3765 Dec 31 11:31	0° 26 '05		minimum elong	3774 Mar 04 10:13	13° 59 '07	8°23'43
				max. Earth dist.	3774 Mar 07 07:41	14° 04 '18	39.07954 AU
conjunction	3766 Feb 20 03:14	1° 26 '05	-5°-1'-45	retrograde	3774 Jun 15 06:52	15° 55 '26	
minimum elong	3766 Feb 20 03:05	1° 26 '04	5°01'46	min. Earth dist.	3774 Sep 02 18:40	14° 49 '05	37.23150 AU
max. Earth dist.	3766 Feb 22 18:48	1° 31 '05	37.02466 AU	opposition	3774 Sep 05 17:32	14° 45 '08	-9°-2'-37
retrograde	3766 Jun 03 00:33	3° 28 '57		direct	3774 Nov 25 22:10	13° 35 '32	
min. Earth dist.	3766 Aug 21 01:23	2° 20 '11	35.15938 AU				
opposition	3766 Aug 23 18:28	2° 16 '25	-5°-33'-36	conjunction	3775 Mar 06 03:39	15° 28 '37	-8°-46'-2
direct	3766 Nov 12 21:17	1° 04 '10		minimum elong	3775 Mar 06 03:27	15° 28 '36	8°46'03
				max. Earth dist.	3775 Mar 09 02:04	15° 33 '50	39.33785 AU
conjunction	3767 Feb 21 23:48	3° 04 '27	-5°-29'-15	retrograde	3775 Jun 16 23:50	17° 24 '11	
minimum elong	3767 Feb 21 23:38	3° 04 '26	5°29'15	min. Earth dist.	3775 Sep 04 13:55	16° 18 '06	37.49118 AU
max. Earth dist.	3767 Feb 24 15:52	3° 09 '27	37.27878 AU	opposition	3775 Sep 07 12:23	16° 14 '11	-9°-25'-38
retrograde	3767 Jun 04 20:59	5° 06 '25		direct	3775 Nov 27 17:24	15° 04 '54	
min. Earth dist.	3767 Aug 22 23:33	3° 57 '55	35.41530 AU				
opposition	3767 Aug 25 17:13	3° 54 '08	-6°-2'-11	conjunction	3776 Mar 06 20:17	16° 57 '12	-9°-7'-45
direct	3767 Nov 14 19:47	2° 42 '12		minimum elong	3776 Mar 06 20:04	16° 57 '11	9°07'47
				max. Earth dist.	3776 Mar 09 17:47	17° 02 '19	39.59464 AU
conjunction	3768 Feb 23 19:51	4° 41 '28	-5°-56'-7	retrograde	3776 Jun 17 19:40	18° 52 '03	
minimum elong	3768 Feb 23 19:40	4° 41 '27	5°56'09	min. Earth dist.	3776 Sep 05 07:25	17° 46 '15	37.74918 AU
max. Earth dist.	3768 Feb 26 13:21	4° 46 '33	37.53326 AU	opposition	3776 Sep 08 06:53	17° 42 '19	-9°-47'-58
retrograde	3768 Jun 05 15:36	6° 42 '32		direct	3776 Nov 28 09:09	16° 33 '20	
min. Earth dist.	3768 Aug 23 21:11	5° 34 '19	35.67175 AU				
opposition	3768 Aug 26 15:21	5° 30 '31	-6°-30'-5	conjunction	3777 Mar 08 12:50	18° 24 '51	-9°-28'-52
direct	3768 Nov 15 19:22	4° 18 '54		minimum elong	3777 Mar 08 12:38	18° 24 '50	9°28'53
				max. Earth dist.	3777 Mar 11 11:17	18° 30 '00	39.84938 AU
conjunction	3769 Feb 24 15:19	6° 17 '11	-6°-22'-20	retrograde	3777 Jun 19 12:40	20° 18 '59	
minimum elong	3769 Feb 24 15:08	6° 17 '10	6°22'21	min. Earth dist.	3777 Sep 07 02:41	19° 13 '21	38.00491 AU
max. Earth dist.	3769 Feb 27 08:43	6° 22 '14	37.78852 AU	opposition	3777 Sep 10 01:02	19° 09 '30	-10°-9'-40
retrograde	3769 Jun 07 13:28	8° 17 '24		direct	3777 Nov 30 02:41	18° 00 '49	
min. Earth dist.	3769 Aug 25 17:07	7° 09 '31	35.92948 AU				
opposition	3769 Aug 28 12:56	7° 05 '39	-6°-57'-16	conjunction	3778 Mar 10 04:58	19° 51 '32	-9°-49'-23

minimum elong	3778 Mar 10 04:45	19° ✕ 51'31	9°49'24	conjunction	3786 Mar 21 00:37	0° Y 50'33	-12°-12'-3
max. Earth dist.	3778 Mar 13 02:45	19° ✕ 56'36	40.10176 AU	minimum elong	3786 Mar 21 00:25	0° Y 50'32	12°12'04
retrograde	3778 Jun 21 03:21	21° ✕ 44'55		max. Earth dist.	3786 Mar 23 23:35	0° Y 55'28	42.06362 AU
min. Earth dist.	3778 Sep 08 19:26	20° ✕ 39'34	38.25809 AU	retrograde	3786 Jul 01 20:31	2° Y 38'47	
opposition	3778 Sep 11 18:37	20° ✕ 35'41	-10°-30'-43	min. Earth dist.	3786 Sep 20 01:48	1° Y 35'11	40.23135 AU
direct	3778 Dec 01 22:13	19° ✕ 27'15		opposition	3786 Sep 23 01:40	1° Y 31'22	-12°-56'-21
				direct	3786 Dec 13 08:26	0° Y 25'02	
conjunction	3779 Mar 11 20:38	21° ✕ 17'12	-10°-9'-18	conjunction	3787 Mar 22 13:53	2° Y 09'29	-12°-27'-17
minimum elong	3779 Mar 11 20:26	21° ✕ 17'11	10°09'18	minimum elong	3787 Mar 22 13:42	2° Y 09'28	12°27'19
max. Earth dist.	3779 Mar 14 18:30	21° ✕ 22'14	40.35156 AU	max. Earth dist.	3787 Mar 25 13:34	2° Y 14'26	42.30245 AU
retrograde	3779 Jun 22 17:36	23° ✕ 09'52		retrograde	3787 Jul 03 09:03	3° Y 57'10	
min. Earth dist.	3779 Sep 10 13:10	22° ✕ 04'41	38.50903 AU	min. Earth dist.	3787 Sep 21 17:05	2° Y 53'45	40.47075 AU
opposition	3779 Sep 13 11:51	22° ✕ 00'50	-10°-51'-8	opposition	3787 Sep 24 15:58	2° Y 50'01	-13°-11'-49
direct	3779 Dec 03 16:54	20° ✕ 52'39		direct	3787 Dec 14 23:49	1° Y 43'58	
conjunction	3780 Mar 12 12:01	22° ✕ 41'49	-10°-28'-37	conjunction	3788 Mar 23 02:47	3° Y 27'49	-12°-42'00
minimum elong	3780 Mar 12 11:48	22° ✕ 41'48	10°28'38	minimum elong	3788 Mar 23 02:36	3° Y 27'48	12°42'01
max. Earth dist.	3780 Mar 15 10:25	22° ✕ 46'52	40.59946 AU	max. Earth dist.	3788 Mar 26 01:06	3° Y 32'38	42.53840 AU
retrograde	3780 Jun 23 06:37	24° ✕ 33'47		retrograde	3788 Jul 04 00:46	5° Y 14'58	
min. Earth dist.	3780 Sep 11 05:54	23° ✕ 28'48	38.75820 AU	min. Earth dist.	3788 Sep 22 06:42	4° Y 11'48	40.70704 AU
opposition	3780 Sep 14 04:39	23° ✕ 24'58	-11°-10'-54	opposition	3788 Sep 25 06:05	4° Y 08'03	-13°-26'-45
direct	3780 Dec 04 12:03	22° ✕ 17'01		direct	3788 Dec 15 11:27	3° Y 02'16	
conjunction	3781 Mar 14 02:47	24° ✕ 05'25	-10°-47'-20	conjunction	3789 Mar 24 15:32	4° Y 45'33	-12°-56'-12
minimum elong	3781 Mar 14 02:35	24° ✕ 05'24	10°47'21	minimum elong	3789 Mar 24 15:21	4° Y 45'32	12°56'13
max. Earth dist.	3781 Mar 17 00:40	24° ✕ 10'24	40.84586 AU	max. Earth dist.	3789 Mar 27 14:18	4° Y 50'22	42.77083 AU
retrograde	3781 Jun 24 22:26	25° ✕ 56'42		retrograde	3789 Jul 05 15:15	6° Y 32'09	
min. Earth dist.	3781 Sep 12 21:35	24° ✕ 51'57	39.00630 AU	min. Earth dist.	3789 Sep 23 22:14	5° Y 29'07	40.93951 AU
opposition	3781 Sep 15 21:07	24° ✕ 48'05	-11°-30'-3	opposition	3789 Sep 26 20:01	5° Y 25'28	-13°-41'-9
direct	3781 Dec 06 03:48	23° ✕ 40'23		direct	3789 Dec 16 23:53	4° Y 19'55	
conjunction	3782 Mar 15 17:29	25° ✕ 28'03	-11°-5'-27	conjunction	3790 Mar 26 04:09	6° Y 02'38	-13°-9'-54
minimum elong	3782 Mar 15 17:16	25° ✕ 28'03	11°05'28	minimum elong	3790 Mar 26 03:58	6° Y 02'37	13°09'54
max. Earth dist.	3782 Mar 18 16:42	25° ✕ 33'07	41.09132 AU	max. Earth dist.	3790 Mar 29 01:49	6° Y 07'22	42.99939 AU
retrograde	3782 Jun 26 13:29	27° ✕ 18'41		retrograde	3790 Jul 07 03:00	7° Y 48'41	
min. Earth dist.	3782 Sep 14 14:09	26° ✕ 14'06	39.25347 AU	min. Earth dist.	3790 Sep 25 11:18	6° Y 45'52	41.16785 AU
opposition	3782 Sep 17 13:01	26° ✕ 10'17	-11°-48'-33	opposition	3790 Sep 28 09:20	6° Y 42'13	-13°-55'-1
direct	3782 Dec 07 19:30	25° ✕ 02'51		direct	3790 Dec 18 13:12	5° Y 36'53	
conjunction	3783 Mar 17 07:44	26° ✕ 49'49	-11°-22'-58	conjunction	3791 Mar 27 16:20	7° Y 19'01	-13°-23'-6
minimum elong	3783 Mar 17 07:32	26° ✕ 49'48	11°22'59	minimum elong	3791 Mar 27 16:09	7° Y 19'00	13°23'08
max. Earth dist.	3783 Mar 20 06:14	26° ✕ 54'47	41.33604 AU	max. Earth dist.	3791 Mar 30 13:17	7° Y 23'40	43.22386 AU
retrograde	3783 Jun 28 05:49	28° ✕ 39'48		retrograde	3791 Jul 08 13:25	9° Y 04'32	
min. Earth dist.	3783 Sep 16 04:28	27° ✕ 35'30	39.49985 AU	min. Earth dist.	3791 Sep 27 01:37	8° Y 01'49	41.39241 AU
opposition	3783 Sep 19 04:36	27° ✕ 31'38	-12°-6'-25	opposition	3791 Sep 29 22:38	7° Y 58'14	-14°-8'-23
direct	3783 Dec 09 09:02	26° ✕ 24'28		direct	3791 Dec 20 04:23	6° Y 53'07	
conjunction	3784 Mar 17 21:33	28° ✕ 10'46	-11°-39'-54	conjunction	3792 Mar 28 04:12	8° Y 34'40	-13°-35'-49
minimum elong	3784 Mar 17 21:21	28° ✕ 10'45	11°39'55	minimum elong	3792 Mar 28 04:02	8° Y 34'39	13°35'50
max. Earth dist.	3784 Mar 20 20:52	28° ✕ 15'46	41.57982 AU	max. Earth dist.	3792 Mar 31 01:34	8° Y 39'20	43.44485 AU
	3784 Jun 25 07:38	0° Y		retrograde	3792 Jul 08 22:28	10° Y 19'38	
retrograde	3784 Jun 28 19:05	0° Y 00'09		min. Earth dist.	3792 Sep 27 15:00	9° Y 17'04	41.61356 AU
	3784 Jul 02 05:48	30° R ✕		opposition	3792 Sep 30 11:32	9° Y 13'31	-14°-21'-14
min. Earth dist.	3784 Sep 16 20:40	28° ✕ 56'02	39.74526 AU	direct	3792 Dec 20 20:30	8° Y 08'35	
opposition	3784 Sep 19 20:04	28° ✕ 52'14	-12°-23'-39				
direct	3784 Dec 10 00:45	27° ✕ 45'20		conjunction	3793 Mar 29 15:45	9° Y 49'33	-13°-48'-3
conjunction	3785 Mar 19 11:18	29° ✕ 31'00	-11°-56'-16	minimum elong	3793 Mar 29 15:35	9° Y 49'33	13°48'05
minimum elong	3785 Mar 19 11:06	29° ✕ 30'59	11°56'17	max. Earth dist.	3793 Apr 01 11:54	9° Y 54'07	43.66285 AU
max. Earth dist.	3785 Mar 22 10:48	29° ✕ 35'59	41.82258 AU	retrograde	3793 Jul 10 11:32	11° Y 34'00	
	3785 Apr 06 00:25	0° Y		min. Earth dist.	3793 Sep 29 03:07	10° Y 31'37	41.83217 AU
retrograde	3785 Jun 30 06:32	1° Y 19'47		opposition	3793 Oct 02 00:02	10° Y 28'03	-14°-33'-33
min. Earth dist.	3785 Sep 18 11:02	0° Y 15'57	39.98923 AU	direct	3793 Dec 22 08:14	9° Y 23'18	
opposition	3785 Sep 21 10:56	0° Y 12'07	-12°-40'-18				
	3785 Sep 30 23:52	30° R ✕		conjunction	3794 Mar 31 03:10	11° Y 03'44	-13°-59'-47
direct	3785 Dec 11 17:44	29° ✕ 05'30		minimum elong	3794 Mar 31 03:02	11° Y 03'43	13°59'48
	3786 Feb 17 08:23	0° Y		max. Earth dist.	3794 Apr 03 00:06	11° Y 08'19	43.87848 AU

retrograde	3794 Jul 11 23:33	12° Υ 47'40		direct	3803 Jan 03 13:09	20° Υ 09'12	
min. Earth dist.	3794 Sep 30 16:38	11° Υ 45'23	42.04846 AU				
opposition	3794 Oct 03 12:20	11° Υ 41'53	-14°-45'-22	conjunction	3803 Apr 11 23:59	21° Υ 45'23	-15°-24'-25
direct	3794 Dec 23 20:31	10° Υ 37'20		minimum elong	3803 Apr 11 23:53	21° Υ 45'22	15°24'26
				max. Earth dist.	3803 Apr 14 15:40	21° Υ 49'27	45.70274 AU
conjunction	3795 Apr 01 14:14	12° Υ 17'14	-14°-11'-1	retrograde	3803 Jul 23 19:13	23° Υ 25'15	
minimum elong	3795 Apr 01 14:04	12° Υ 17'13	14°11'02	min. Earth dist.	3803 Oct 13 00:24	22° Υ 24'17	43.87090 AU
max. Earth dist.	3795 Apr 04 10:19	12° Υ 21'44	44.09211 AU	opposition	3803 Oct 15 15:42	22° Υ 21'06	-16°-9'-59
retrograde	3795 Jul 13 11:44	14° Υ 00'39		direct	3804 Jan 05 00:00	21° Υ 18'18	
min. Earth dist.	3795 Oct 02 03:43	12° Υ 58'35	42.26273 AU				
opposition	3795 Oct 05 00:13	12° Υ 55'04	-14°-56'-39	conjunction	3804 Apr 12 09:28	22° Υ 54'01	-15°-31'-44
direct	3795 Dec 25 06:30	11° Υ 50'43		minimum elong	3804 Apr 12 09:23	22° Υ 54'01	15°31'46
				max. Earth dist.	3804 Apr 15 01:28	22° Υ 58'06	45.88625 AU
conjunction	3796 Apr 02 01:03	13° Υ 30'06	-14°-21'-46	retrograde	3804 Jul 24 03:07	24° Υ 33'29	
minimum elong	3796 Apr 02 00:56	13° Υ 30'05	14°21'47	min. Earth dist.	3804 Oct 13 11:36	23° Υ 32'35	44.05366 AU
max. Earth dist.	3796 Apr 04 21:12	13° Υ 34'35	44.30375 AU	opposition	3804 Oct 16 01:36	23° Υ 29'28	-16°-17'-14
retrograde	3796 Jul 13 23:03	15° Υ 13'02		direct	3805 Jan 05 12:06	22° Υ 26'49	
min. Earth dist.	3796 Oct 02 16:27	14° Υ 11'05	42.47508 AU				
opposition	3796 Oct 05 12:05	14° Υ 07'38	-15°-7'-26	conjunction	3805 Apr 13 18:32	24° Υ 02'06	-15°-38'-39
direct	3796 Dec 25 16:59	13° Υ 03'29		minimum elong	3805 Apr 13 18:27	24° Υ 02'06	15°38'40
				max. Earth dist.	3805 Apr 16 09:02	24° Υ 06'04	46.06622 AU
conjunction	3797 Apr 03 11:44	14° Υ 42'23	-14°-32'-2	retrograde	3805 Jul 25 14:15	25° Υ 41'09	
minimum elong	3797 Apr 03 11:35	14° Υ 42'22	14°32'03	min. Earth dist.	3805 Oct 14 20:52	24° Υ 40'23	44.23318 AU
max. Earth dist.	3797 Apr 06 08:05	14° Υ 46'52	44.51346 AU	opposition	3805 Oct 17 11:12	24° Υ 37'17	-16°-24'-5
retrograde	3797 Jul 15 07:02	16° Υ 24'51		direct	3806 Jan 06 20:15	23° Υ 34'46	
min. Earth dist.	3797 Oct 04 04:00	15° Υ 23'05	42.68506 AU				
opposition	3797 Oct 06 23:32	15° Υ 19'38	-15°-17'-43	conjunction	3806 Apr 15 03:31	25° Υ 09'39	-15°-45'-10
direct	3797 Dec 27 06:52	14° Υ 15'42		minimum elong	3806 Apr 15 03:27	25° Υ 09'38	15°45'11
				max. Earth dist.	3806 Apr 17 18:12	25° Υ 13'36	46.24312 AU
conjunction	3798 Apr 04 22:09	15° Υ 54'07	-14°-41'-50	retrograde	3806 Jul 27 01:12	26° Υ 48'18	
minimum elong	3798 Apr 04 22:02	15° Υ 54'07	14°41'51	min. Earth dist.	3806 Oct 16 07:44	25° Υ 47'36	44.40990 AU
max. Earth dist.	3798 Apr 07 17:17	15° Υ 58'30	44.72067 AU	opposition	3806 Oct 18 20:34	25° Υ 44'34	-16°-30'-30
retrograde	3798 Jul 16 17:09	17° Υ 36'09		direct	3807 Jan 08 03:33	24° Υ 42'13	
min. Earth dist.	3798 Oct 05 15:20	16° Υ 34'33	42.89246 AU				
opposition	3798 Oct 08 10:40	16° Υ 31'08	-15°-27'-32	conjunction	3807 Apr 16 12:20	26° Υ 16'42	-15°-51'-17
direct	3798 Dec 28 18:54	15° Υ 27'25		minimum elong	3807 Apr 16 12:16	26° Υ 16'42	15°51'17
				max. Earth dist.	3807 Apr 19 02:35	26° Υ 20'37	46.41761 AU
conjunction	3799 Apr 06 08:31	17° Υ 05'21	-14°-51'-11	retrograde	3807 Jul 28 08:16	27° Υ 54'58	
minimum elong	3799 Apr 06 08:23	17° Υ 05'21	14°51'12	min. Earth dist.	3807 Oct 17 16:27	26° Υ 54'26	44.58413 AU
max. Earth dist.	3799 Apr 09 04:17	17° Υ 09'46	44.92502 AU	opposition	3807 Oct 20 05:44	26° Υ 51'24	-16°-36'-29
retrograde	3799 Jul 18 03:57	18° Υ 46'57		direct	3808 Jan 09 12:49	25° Υ 49'12	
min. Earth dist.	3799 Oct 07 03:49	17° Υ 45'29	43.09657 AU				
opposition	3799 Oct 09 21:45	17° Υ 42'08	-15°-36'-52	conjunction	3808 Apr 16 20:42	27° Υ 23'19	-15°-56'-59
direct	3799 Dec 30 06:41	16° Υ 38'38		minimum elong	3808 Apr 16 20:38	27° Υ 23'19	15°57'00
				max. Earth dist.	3808 Apr 19 10:02	27° Υ 27'10	46.58970 AU
conjunction	3800 Apr 07 18:30	18° Υ 16'07	-15°00'-6	retrograde	3808 Jul 28 15:24	29° Υ 01'14	
minimum elong	3800 Apr 07 18:24	18° Υ 16'06	15°00'07	min. Earth dist.	3808 Oct 18 02:20	28° Υ 00'49	44.75608 AU
max. Earth dist.	3800 Apr 10 12:52	18° Υ 20'25	45.12595 AU	opposition	3808 Oct 20 14:53	27° Υ 57'50	-16°-42'-4
retrograde	3800 Jul 19 16:18	19° Υ 57'17		direct	3809 Jan 09 23:05	26° Υ 55'48	
min. Earth dist.	3800 Oct 08 14:19	18° Υ 56'00	43.29691 AU				
opposition	3800 Oct 11 08:34	18° Υ 52'39	-15°-45'-46	conjunction	3809 Apr 18 05:15	28° Υ 29'34	-16°-2'-18
direct	3800 Dec 31 15:34	17° Υ 49'20		minimum elong	3809 Apr 18 05:13	28° Υ 29'34	16°02'18
				max. Earth dist.	3809 Apr 20 19:12	28° Υ 33'26	46.75951 AU
conjunction	3801 Apr 09 04:33	19° Υ 26'23	-15°-8'-36		3809 Jul 04 16:00	0° \mathcal{B}	
minimum elong	3801 Apr 09 04:26	19° Υ 26'23	15°08'37	retrograde	3809 Jul 29 21:56	0° \mathcal{B} 07'09	
max. Earth dist.	3801 Apr 11 22:28	19° Υ 30'38	45.32272 AU		3809 Aug 24 16:04	30° $\mathcal{R}\Upsilon$	
retrograde	3801 Jul 21 02:29	21° Υ 07'08		min. Earth dist.	3809 Oct 19 11:56	29° Υ 06'51	44.92540 AU
min. Earth dist.	3801 Oct 10 02:48	20° Υ 05'55	43.49291 AU	opposition	3809 Oct 21 23:37	29° Υ 03'54	-16°-47'-14
opposition	3801 Oct 12 19:12	20° Υ 02'41	-15°-54'-15	direct	3810 Jan 11 10:42	28° Υ 02'03	
direct	3802 Jan 02 01:30	18° Υ 59'33					
				conjunction	3810 Apr 19 13:30	29° Υ 35'29	-16°-7'-13
conjunction	3802 Apr 10 14:31	20° Υ 36'09	-15°-16'-42	minimum elong	3810 Apr 19 13:27	29° Υ 35'28	16°07'15
minimum elong	3802 Apr 10 14:25	20° Υ 36'09	15°16'44	max. Earth dist.	3810 Apr 22 01:53	29° Υ 39'14	46.92668 AU
max. Earth dist.	3802 Apr 13 07:47	20° Υ 40'21	45.51509 AU		3810 May 06 04:09	0° \mathcal{B}	
retrograde	3802 Jul 22 09:59	22° Υ 16'28		retrograde	3810 Jul 31 08:22	1° \mathcal{B} 12'44	
min. Earth dist.	3802 Oct 11 13:30	21° Υ 15'23	43.68412 AU	min. Earth dist.	3810 Oct 20 20:22	0° \mathcal{B} 12'37	45.09191 AU
opposition	3802 Oct 14 05:31	21° Υ 12'10	-16°-2'-19	opposition	3810 Oct 23 08:17	0° \mathcal{B} 09'40	-16°-52'-1

	3810 Oct 31 13:17	30° \mathbb{R} \mathbb{Y}		conjunction	3819 Apr 29 10:42	9° \mathbb{B} 13'00	-16°-36'-16
direct	3811 Jan 12 18:19	29° \mathbb{Y} 08'00		minimum elong	3819 Apr 29 10:43	9° \mathbb{B} 13'00	16°36'18
	3811 Mar 23 07:02	0° \mathbb{B}		max. Earth dist.	3819 May 01 16:29	9° \mathbb{B} 16'15	48.24788 AU
				retrograde	3819 Aug 10 02:46	10° \mathbb{B} 47'21	
conjunction	3811 Apr 20 21:36	0° \mathbb{B} 41'05	-16°-11'-46	min. Earth dist.	3819 Oct 31 03:58	9° \mathbb{B} 47'54	46.39964 AU
minimum elong	3811 Apr 20 21:34	0° \mathbb{B} 41'05	16°11'48	opposition	3819 Nov 02 07:10	9° \mathbb{B} 45'25	-17°-19'-30
max. Earth dist.	3811 Apr 23 10:05	0° \mathbb{B} 44'50	47.09070 AU	direct	3820 Jan 22 18:06	8° \mathbb{B} 44'53	
retrograde	3811 Aug 01 18:10	2° \mathbb{B} 18'01					
min. Earth dist.	3811 Oct 22 06:46	1° \mathbb{B} 17'59	45.25496 AU	conjunction	3820 Apr 29 17:36	10° \mathbb{B} 15'07	-16°-37'-52
opposition	3811 Oct 24 16:52	1° \mathbb{B} 15'08	-16°-56'-25	minimum elong	3820 Apr 29 17:38	10° \mathbb{B} 15'07	16°37'53
direct	3812 Jan 14 01:42	0° \mathbb{B} 13'39		max. Earth dist.	3820 May 01 21:43	10° \mathbb{B} 18'15	48.37571 AU
				retrograde	3820 Aug 10 10:02	11° \mathbb{B} 49'10	
conjunction	3812 Apr 21 05:44	1° \mathbb{B} 46'25	-16°-15'-58	min. Earth dist.	3820 Oct 31 11:03	10° \mathbb{B} 49'50	46.52640 AU
minimum elong	3812 Apr 21 05:41	1° \mathbb{B} 46'25	16°15'59	opposition	3820 Nov 02 14:12	10° \mathbb{B} 47'22	-17°-20'-52
max. Earth dist.	3812 Apr 23 17:17	1° \mathbb{B} 50'05	47.25119 AU	direct	3821 Jan 23 01:15	9° \mathbb{B} 46'57	
retrograde	3812 Aug 02 03:00	3° \mathbb{B} 23'01					
min. Earth dist.	3812 Oct 22 15:10	2° \mathbb{B} 23'09	45.41402 AU	conjunction	3821 May 01 00:31	11° \mathbb{B} 16'55	-16°-39'-8
opposition	3812 Oct 25 01:11	2° \mathbb{B} 20'18	-17°00'-27	minimum elong	3821 May 01 00:32	11° \mathbb{B} 16'55	16°39'10
direct	3813 Jan 14 08:00	1° \mathbb{B} 18'59		max. Earth dist.	3821 May 03 04:49	11° \mathbb{B} 20'03	48.50075 AU
				retrograde	3821 Aug 11 17:31	12° \mathbb{B} 50'43	
conjunction	3813 Apr 22 13:40	2° \mathbb{B} 51'26	-16°-19'-49	min. Earth dist.	3821 Nov 01 19:42	11° \mathbb{B} 51'26	46.65016 AU
minimum elong	3813 Apr 22 13:40	2° \mathbb{B} 51'26	16°19'51	opposition	3821 Nov 03 21:12	11° \mathbb{B} 49'02	-17°-21'-54
max. Earth dist.	3813 Apr 24 23:50	2° \mathbb{B} 55'01	47.40728 AU	direct	3822 Jan 24 09:11	10° \mathbb{B} 48'46	
retrograde	3813 Aug 03 11:00	4° \mathbb{B} 27'44					
min. Earth dist.	3813 Oct 24 01:00	3° \mathbb{B} 27'55	45.56847 AU	conjunction	3822 May 02 07:20	12° \mathbb{B} 18'28	-16°-40'-5
opposition	3813 Oct 26 09:31	3° \mathbb{B} 25'10	-17°-4'-9	minimum elong	3822 May 02 07:23	12° \mathbb{B} 18'28	16°40'06
direct	3814 Jan 15 15:18	2° \mathbb{B} 23'59		max. Earth dist.	3822 May 04 10:36	12° \mathbb{B} 21'31	48.62287 AU
				retrograde	3822 Aug 13 01:50	13° \mathbb{B} 52'01	
conjunction	3814 Apr 23 21:44	3° \mathbb{B} 56'07	-16°-23'-22	min. Earth dist.	3822 Nov 03 02:09	12° \mathbb{B} 52'52	46.77073 AU
minimum elong	3814 Apr 23 21:43	3° \mathbb{B} 56'07	16°23'22	opposition	3822 Nov 05 03:50	12° \mathbb{B} 50'29	-17°-22'-37
max. Earth dist.	3814 Apr 26 07:35	3° \mathbb{B} 59'40	47.55855 AU	direct	3823 Jan 25 13:48	11° \mathbb{B} 50'20	
retrograde	3814 Aug 04 15:38	5° \mathbb{B} 32'05					
min. Earth dist.	3814 Oct 25 10:11	4° \mathbb{B} 32'21	45.71771 AU	conjunction	3823 May 03 13:57	13° \mathbb{B} 19'49	-16°-40'-43
opposition	3814 Oct 27 17:28	4° \mathbb{B} 29'39	-17°-7'-32	minimum elong	3823 May 03 13:59	13° \mathbb{B} 19'49	16°40'44
direct	3815 Jan 17 02:29	3° \mathbb{B} 28'36		max. Earth dist.	3823 May 05 16:09	13° \mathbb{B} 22'48	48.74156 AU
				retrograde	3823 Aug 14 09:55	14° \mathbb{B} 53'08	
conjunction	3815 Apr 25 05:27	5° \mathbb{B} 00'24	-16°-26'-35	min. Earth dist.	3823 Nov 04 10:36	13° \mathbb{B} 54'03	46.88772 AU
minimum elong	3815 Apr 25 05:27	5° \mathbb{B} 00'24	16°26'36	opposition	3823 Nov 06 10:40	13° \mathbb{B} 51'45	-17°-23'-1
max. Earth dist.	3815 Apr 27 13:12	5° \mathbb{B} 03'49	47.70479 AU	direct	3824 Jan 26 17:57	12° \mathbb{B} 51'44	
retrograde	3815 Aug 05 23:20	6° \mathbb{B} 36'02					
min. Earth dist.	3815 Oct 26 18:33	5° \mathbb{B} 36'23	45.86206 AU	conjunction	3824 May 03 20:35	14° \mathbb{B} 21'00	-16°-41'-3
opposition	3815 Oct 29 01:24	5° \mathbb{B} 33'43	-17°-10'-36	minimum elong	3824 May 03 20:39	14° \mathbb{B} 21'00	16°41'04
direct	3816 Jan 18 11:43	4° \mathbb{B} 32'47		max. Earth dist.	3824 May 05 22:40	14° \mathbb{B} 23'59	48.85646 AU
					3824 Jun 01 01:11	15° \mathbb{B}	
conjunction	3816 Apr 25 12:56	6° \mathbb{B} 04'14	-16°-29'-30	retrograde	3824 Aug 14 14:13	15° \mathbb{B} 54'06	
minimum elong	3816 Apr 25 12:55	6° \mathbb{B} 04'14	16°29'30		3824 Oct 31 11:39	15° \mathbb{R} \mathbb{B}	
max. Earth dist.	3816 Apr 27 20:36	6° \mathbb{B} 07'38	47.84624 AU	min. Earth dist.	3824 Nov 04 18:02	14° \mathbb{B} 55'07	47.00036 AU
retrograde	3816 Aug 06 08:35	7° \mathbb{B} 39'33		opposition	3824 Nov 06 17:15	14° \mathbb{B} 52'51	-17°-23'-7
min. Earth dist.	3816 Oct 27 04:16	6° \mathbb{B} 39'54	46.00182 AU	direct	3825 Jan 27 02:30	13° \mathbb{B} 52'59	
opposition	3816 Oct 29 09:14	6° \mathbb{B} 37'19	-17°-13'-20		3825 Apr 19 11:53	15° \mathbb{B}	
direct	3817 Jan 18 19:41	5° \mathbb{B} 36'29					
				conjunction	3825 May 05 03:12	15° \mathbb{B} 22'02	-16°-41'-7
conjunction	3817 Apr 26 20:24	7° \mathbb{B} 07'36	-16°-32'-5	minimum elong	3825 May 05 03:14	15° \mathbb{B} 22'02	16°41'07
minimum elong	3817 Apr 26 20:24	7° \mathbb{B} 07'36	16°32'07	max. Earth dist.	3825 May 07 03:04	15° \mathbb{B} 24'52	48.96674 AU
max. Earth dist.	3817 Apr 29 02:59	7° \mathbb{B} 10'55	47.98358 AU	retrograde	3825 Aug 15 20:09	16° \mathbb{B} 54'55	
retrograde	3817 Aug 07 16:36	8° \mathbb{B} 42'35		min. Earth dist.	3825 Nov 06 01:26	15° \mathbb{B} 56'00	47.10819 AU
min. Earth dist.	3817 Oct 28 11:28	7° \mathbb{B} 43'01	46.13767 AU	opposition	3825 Nov 07 23:41	15° \mathbb{B} 53'48	-17°-22'-56
opposition	3817 Oct 30 16:34	7° \mathbb{B} 40'27	-17°-15'-44		3826 Jan 05 04:25	15° \mathbb{R} \mathbb{B}	
direct	3818 Jan 20 01:33	6° \mathbb{B} 39'42		direct	3826 Jan 28 10:13	14° \mathbb{B} 54'02	
					3826 Feb 20 08:46	15° \mathbb{B}	
conjunction	3818 Apr 28 03:36	8° \mathbb{B} 10'31	-16°-34'-21				
minimum elong	3818 Apr 28 03:37	8° \mathbb{B} 10'31	16°34'21	conjunction	3826 May 06 09:52	16° \mathbb{B} 22'53	-16°-40'-54
max. Earth dist.	3818 Apr 30 09:03	8° \mathbb{B} 13'45	48.11725 AU	minimum elong	3826 May 06 09:57	16° \mathbb{B} 22'53	16°40'56
retrograde	3818 Aug 08 23:16	9° \mathbb{B} 45'10		max. Earth dist.	3826 May 08 09:22	16° \mathbb{B} 25'42	49.07184 AU
min. Earth dist.	3818 Oct 29 20:15	8° \mathbb{B} 45'38	46.27020 AU	retrograde	3826 Aug 17 03:33	17° \mathbb{B} 55'33	
opposition	3818 Oct 31 23:59	8° \mathbb{B} 43'08	-17°-17'-47	min. Earth dist.	3826 Nov 07 09:59	16° \mathbb{B} 56'39	47.21053 AU
direct	3819 Jan 21 08:32	7° \mathbb{B} 42'30		opposition	3826 Nov 09 06:10	16° \mathbb{B} 54'32	-17°-22'-29

direct	3827 Jan 29 17:58	15°♄54'53		minimum elong	3835 May 15 15:36	25°♄18'06	16°26'56
				max. Earth dist.	3835 May 17 05:58	25°♄20'20	49.82704 AU
conjunction	3827 May 07 16:14	17°♄23'30 -16°-40'-26		retrograde	3835 Aug 26 07:25	26°♄48'52	
minimum elong	3827 May 07 16:17	17°♄23'30 16°40'27		min. Earth dist.	3835 Nov 16 21:14	25°♄50'19	47.94655 AU
max. Earth dist.	3827 May 09 13:59	17°♄26'12 49.17163 AU		opposition	3835 Nov 18 10:06	25°♄48'35	-17°-6'00
retrograde	3827 Aug 18 12:10	18°♄55'56		direct	3836 Feb 07 20:39	24°♄49'35	
min. Earth dist.	3827 Nov 08 16:23	17°♄57'07 47.30753 AU					
opposition	3827 Nov 10 12:26	17°♄55'01 -17°-21'-47		conjunction	3836 May 15 21:13	26°♄16'29	-16°-23'-59
direct	3828 Jan 30 22:25	16°♄55'27		minimum elong	3836 May 15 21:18	26°♄16'29	16°24'01
				max. Earth dist.	3836 May 17 11:37	26°♄18'42	49.89421 AU
conjunction	3828 May 07 22:31	18°♄23'50 -16°-39'-43		retrograde	3836 Aug 26 11:35	27°♄47'06	
minimum elong	3828 May 07 22:36	18°♄23'51 16°39'45		min. Earth dist.	3836 Nov 17 04:21	26°♄48'33	48.01110 AU
max. Earth dist.	3828 May 09 18:54	18°♄26'27 49.26622 AU		opposition	3836 Nov 18 15:25	26°♄46'54	-17°-2'-45
retrograde	3828 Aug 18 18:40	19°♄56'02		direct	3837 Feb 08 04:49	25°♄47'59	
min. Earth dist.	3828 Nov 09 00:36	18°♄57'11 47.39968 AU					
opposition	3828 Nov 10 18:39	18°♄55'12 -17°-20'-49		conjunction	3837 May 17 02:53	27°♄14'44	-16°-20'-48
direct	3829 Jan 31 03:17	17°♄55'42		minimum elong	3837 May 17 03:01	27°♄14'45	16°20'49
				max. Earth dist.	3837 May 18 15:36	27°♄16'51	49.95711 AU
conjunction	3829 May 09 04:47	19°♄23'52 -16°-38'-44		retrograde	3837 Aug 27 19:09	28°♄45'12	
minimum elong	3829 May 09 04:51	19°♄23'52 16°38'45		min. Earth dist.	3837 Nov 18 09:48	27°♄46'44	48.07095 AU
max. Earth dist.	3829 May 11 00:58	19°♄26'27 49.35635 AU		opposition	3837 Nov 19 20:37	27°♄45'05	-16°-59'-16
retrograde	3829 Aug 19 21:20	20°♄55'49		direct	3838 Feb 09 09:26	26°♄46'15	
min. Earth dist.	3829 Nov 10 07:08	19°♄57'00 47.48747 AU					
opposition	3829 Nov 12 00:35	19°♄55'02 -17°-19'-34		conjunction	3838 May 18 08:31	28°♄12'52	-16°-17'-23
direct	3830 Feb 01 10:42	18°♄55'36		minimum elong	3838 May 18 08:37	28°♄12'52	16°17'24
				max. Earth dist.	3838 May 19 19:38	28°♄14'53	50.01487 AU
conjunction	3830 May 10 10:46	20°♄23'33 -16°-37'-28		retrograde	3838 Aug 29 02:07	29°♄43'10	
minimum elong	3830 May 10 10:51	20°♄23'34 16°37'30		min. Earth dist.	3838 Nov 19 17:20	28°♄44'39	48.12555 AU
max. Earth dist.	3830 May 12 05:00	20°♄26'02 49.44247 AU		opposition	3838 Nov 21 01:51	28°♄43'08	-16°-55'-33
retrograde	3830 Aug 21 02:11	21°♄55'16		direct	3839 Feb 10 13:04	27°♄44'21	
min. Earth dist.	3830 Nov 11 13:31	20°♄56'30 47.57167 AU					
opposition	3830 Nov 13 06:21	20°♄54'34 -17°-18'-2		conjunction	3839 May 19 14:11	29°♄10'49	-16°-13'-45
direct	3831 Feb 02 17:32	19°♄55'11		minimum elong	3839 May 19 14:19	29°♄10'49	16°13'46
				max. Earth dist.	3839 May 21 00:46	29°♄12'48	50.06748 AU
conjunction	3831 May 11 16:45	21°♄22'56 -16°-35'-56		retrograde	3839 Jun 26 06:21	0°♄	
minimum elong	3831 May 11 16:50	21°♄22'56 16°35'56			3839 Aug 30 05:59	0°♄40'57	
max. Earth dist.	3831 May 13 11:06	21°♄25'25 49.52523 AU			3839 Nov 05 02:01	30°♄	
retrograde	3831 Aug 22 07:05	22°♄54'27		min. Earth dist.	3839 Nov 20 23:07	29°♄42'28	48.17483 AU
min. Earth dist.	3831 Nov 12 20:45	21°♄55'41 47.65262 AU		opposition	3839 Nov 22 06:57	29°♄40'58	-16°-51'-37
opposition	3831 Nov 14 12:09	21°♄53'49 -17°-16'-12		direct	3840 Feb 11 18:24	28°♄42'13	
direct	3832 Feb 04 01:43	20°♄54'30			3840 May 13 14:26	0°♄	
conjunction	3832 May 11 22:30	22°♄22'03 -16°-34'-6		conjunction	3840 May 19 19:30	0°♄08'33	-16°-9'-53
minimum elong	3832 May 11 22:35	22°♄22'03 16°34'08		minimum elong	3840 May 19 19:37	0°♄08'34	16°09'54
max. Earth dist.	3832 May 13 15:46	22°♄24'27 49.60512 AU		max. Earth dist.	3840 May 21 03:45	0°♄10'24	50.11498 AU
retrograde	3832 Aug 22 14:44	23°♄53'21		retrograde	3840 Aug 30 10:23	1°♄38'31	
min. Earth dist.	3832 Nov 13 02:08	22°♄54'41 47.73068 AU		min. Earth dist.	3840 Nov 21 05:18	0°♄40'02	48.21930 AU
opposition	3832 Nov 14 17:45	22°♄52'48 -17°-14'-5		opposition	3840 Nov 22 12:03	0°♄38'35	-16°-47'-26
direct	3833 Feb 04 06:32	21°♄53'34			3840 Dec 29 20:10	30°♄	
				direct	3841 Feb 11 23:55	29°♄39'53	
conjunction	3833 May 13 04:15	23°♄20'55 -16°-31'-59			3841 Mar 27 10:11	0°♄	
minimum elong	3833 May 13 04:22	23°♄20'55 16°32'00					
max. Earth dist.	3833 May 14 20:34	23°♄23'16 49.68205 AU		conjunction	3841 May 21 01:00	1°♄06'04	-16°-5'-47
retrograde	3833 Aug 23 23:29	24°♄52'02		minimum elong	3841 May 21 01:09	1°♄06'05	16°05'49
min. Earth dist.	3833 Nov 14 09:14	23°♄53'22 47.80586 AU		max. Earth dist.	3841 May 22 09:04	1°♄07'54	50.15784 AU
opposition	3833 Nov 15 23:16	23°♄51'34 -17°-11'-40		retrograde	3841 Aug 31 13:52	2°♄35'53	
direct	3834 Feb 05 08:41	22°♄52'24		min. Earth dist.	3841 Nov 22 11:52	1°♄37'21	48.25933 AU
				opposition	3841 Nov 23 16:52	1°♄36'00	-16°-43'00
conjunction	3834 May 14 10:04	24°♄19'36 -16°-29'-35		direct	3842 Feb 13 07:13	0°♄37'19	
minimum elong	3834 May 14 10:09	24°♄19'36 16°29'37					
max. Earth dist.	3834 May 16 02:19	24°♄21'56 49.75617 AU		conjunction	3842 May 22 06:19	2°♄03'22	-16°-1'-26
retrograde	3834 Aug 25 03:29	25°♄50'31		minimum elong	3842 May 22 06:27	2°♄03'23	16°01'27
min. Earth dist.	3834 Nov 15 15:00	24°♄51'55 47.87788 AU		max. Earth dist.	3842 May 23 12:58	2°♄05'08	50.19677 AU
opposition	3834 Nov 17 04:40	24°♄50'09 -17°-8'-58		retrograde	3842 Sep 01 20:08	3°♄33'03	
direct	3835 Feb 06 14:22	23°♄51'04		opposition	3842 Nov 24 21:39	2°♄33'12	-16°-38'-20
				min. Earth dist.	3842 Nov 23 16:36	2°♄34'34	48.29570 AU
conjunction	3835 May 15 15:29	25°♄18'06 -16°-26'-55		direct	3843 Feb 14 12:02	1°♄34'33	

conjunction	3843 May 23 11:21	3°II00'30	-15°-56'-51	retrograde	3851 Sep 10 16:50	12°II04'23	
minimum elong	3843 May 23 11:29	3°II00'30	15°56'52	opposition	3851 Dec 03 15:08	11°II05'04	-15°-44'-48
max. Earth dist.	3843 May 24 16:57	3°II02'11	50.23215 AU	min. Earth dist.	3851 Dec 02 20:19	11°II05'57	48.46724 AU
retrograde	3843 Sep 03 04:00	4°II30'03		direct	3852 Feb 23 04:32	10°II06'48	
min. Earth dist.	3843 Nov 24 23:11	3°II31'32	48.32880 AU				
opposition	3843 Nov 26 02:33	3°II30'15	-16°-33'-23	conjunction	3852 May 31 09:34	11°II32'12	-15°-4'-28
direct	3844 Feb 15 14:20	2°II31'39		minimum elong	3852 May 31 09:44	11°II32'12	15°04'30
				max. Earth dist.	3852 Jun 01 05:24	11°II33'19	50.39407 AU
conjunction	3844 May 23 16:37	3°II57'29	-15°-52'00	retrograde	3852 Sep 10 21:46	13°II01'00	
minimum elong	3844 May 23 16:45	3°II57'30	15°52'00	opposition	3852 Dec 03 19:27	12°II01'42	-15°-37'-43
max. Earth dist.	3844 May 24 22:10	3°II59'10	50.26458 AU	min. Earth dist.	3852 Dec 03 01:03	12°II02'33	48.46318 AU
retrograde	3844 Sep 03 08:15	5°II26'55		direct	3853 Feb 23 10:25	11°II03'25	
min. Earth dist.	3844 Nov 25 03:56	4°II28'27	48.35890 AU				
opposition	3844 Nov 26 07:09	4°II27'11	-16°-28'-11	conjunction	3853 Jun 01 14:39	12°II28'45	-14°-57'-32
direct	3845 Feb 15 18:03	3°II28'37		minimum elong	3853 Jun 01 14:49	12°II28'45	14°57'33
				max. Earth dist.	3853 Jun 02 08:52	12°II29'46	50.38867 AU
conjunction	3845 May 24 21:41	4°II54'23	-15°-46'-53	retrograde	3853 Sep 12 05:16	13°II57'28	
minimum elong	3845 May 24 21:49	4°II54'23	15°46'55	opposition	3853 Dec 04 23:54	12°II58'09	-15°-30'-25
max. Earth dist.	3845 May 26 01:25	4°II55'58	50.29412 AU	min. Earth dist.	3853 Dec 04 07:35	12°II58'55	48.45446 AU
retrograde	3845 Sep 04 12:21	6°II23'42		direct	3854 Feb 24 13:49	11°II59'52	
min. Earth dist.	3845 Nov 26 09:31	5°II25'16	48.38616 AU				
opposition	3845 Nov 27 11:51	5°II24'02	-16°-22'-43	conjunction	3854 Jun 02 19:42	13°II25'08	-14°-50'-24
direct	3846 Feb 16 23:08	4°II25'31		minimum elong	3854 Jun 02 19:53	13°II25'08	14°50'26
				max. Earth dist.	3854 Jun 03 13:40	13°II26'09	50.37897 AU
conjunction	3846 May 26 02:49	5°II51'13	-15°-41'-31	retrograde	3854 Sep 13 10:27	14°II53'46	
minimum elong	3846 May 26 02:58	5°II51'14	15°41'32	opposition	3854 Dec 06 04:06	13°II54'27	-15°-22'-53
max. Earth dist.	3846 May 27 06:37	5°II52'48	50.32068 AU	min. Earth dist.	3854 Dec 05 12:08	13°II55'12	48.44161 AU
retrograde	3846 Sep 05 14:47	7°II20'28		direct	3855 Feb 25 16:31	12°II56'08	
opposition	3846 Nov 28 16:26	6°II20'52	-16°-16'-59				
min. Earth dist.	3846 Nov 27 15:26	6°II22'02	48.41024 AU	conjunction	3855 Jun 04 00:35	14°II21'22	-14°-43'-2
direct	3847 Feb 18 07:12	5°II22'25		minimum elong	3855 Jun 04 00:45	14°II21'22	14°43'02
				max. Earth dist.	3855 Jun 04 16:32	14°II22'16	50.36550 AU
conjunction	3847 May 27 07:51	6°II48'03	-15°-35'-54	retrograde	3855 Sep 14 15:14	15°II49'55	
minimum elong	3847 May 27 08:00	6°II48'04	15°35'56	opposition	3855 Dec 07 08:25	14°II50'37	-15°-15'-6
max. Earth dist.	3847 May 28 10:16	6°II49'33	50.34419 AU	min. Earth dist.	3855 Dec 06 17:30	14°II51'18	48.42535 AU
retrograde	3847 Sep 06 22:01	8°II17'14		direct	3856 Feb 26 20:20	13°II52'17	
opposition	3847 Nov 29 20:58	7°II17'43	-16°-11'00				
min. Earth dist.	3847 Nov 28 20:01	7°II18'52	48.43101 AU	conjunction	3856 Jun 04 05:33	15°II17'28	-14°-35'-25
direct	3848 Feb 19 11:18	6°II19'19		minimum elong	3856 Jun 04 05:43	15°II17'29	14°35'27
				max. Earth dist.	3856 Jun 04 21:26	15°II18'22	50.34871 AU
conjunction	3848 May 27 12:52	7°II44'55	-15°-30'-3	retrograde	3856 Sep 14 16:18	16°II45'59	
minimum elong	3848 May 27 13:02	7°II44'55	15°30'04	opposition	3856 Dec 07 12:43	15°II46'40	-15°-7'-4
max. Earth dist.	3848 May 28 14:06	7°II46'21	50.36393 AU	min. Earth dist.	3856 Dec 06 23:04	15°II47'18	48.40577 AU
retrograde	3848 Sep 07 05:43	9°II14'02		direct	3857 Feb 27 03:56	14°II48'19	
min. Earth dist.	3848 Nov 29 02:51	8°II15'39	48.44771 AU				
opposition	3848 Nov 30 01:38	8°II14'35	-16°-4'-46	conjunction	3857 Jun 05 10:32	16°II13'30	-14°-27'-34
direct	3849 Feb 19 13:37	7°II16'15		minimum elong	3857 Jun 05 10:43	16°II13'31	14°27'35
				max. Earth dist.	3857 Jun 06 01:05	16°II14'19	50.32889 AU
conjunction	3849 May 28 18:10	8°II41'48	-15°-23'-58	retrograde	3857 Sep 15 21:19	17°II41'58	
minimum elong	3849 May 28 18:18	8°II41'48	15°23'59	opposition	3857 Dec 08 16:47	16°II42'41	-14°-58'-48
max. Earth dist.	3849 May 29 18:49	8°II43'12	50.37933 AU	min. Earth dist.	3857 Dec 08 03:09	16°II43'19	48.38320 AU
retrograde	3849 Sep 08 10:15	10°II10'50		direct	3858 Feb 28 08:46	15°II44'20	
min. Earth dist.	3849 Nov 30 07:53	9°II12'29	48.45958 AU				
opposition	3849 Dec 01 05:58	9°II11'28	-15°-58'-20	conjunction	3858 Jun 06 15:28	17°II09'31	-14°-19'-29
direct	3850 Feb 20 17:21	8°II13'10		minimum elong	3858 Jun 06 15:38	17°II09'31	14°19'30
				max. Earth dist.	3858 Jun 07 04:51	17°II10'16	50.30595 AU
conjunction	3850 May 29 23:18	9°II38'41	-15°-17'-40	retrograde	3858 Sep 17 04:44	18°II37'59	
minimum elong	3850 May 29 23:28	9°II38'41	15°17'41	opposition	3858 Dec 09 21:09	17°II38'43	-14°-50'-17
max. Earth dist.	3850 May 30 21:26	9°II39'56	50.38963 AU	min. Earth dist.	3858 Dec 09 09:24	17°II39'15	48.35750 AU
retrograde	3850 Sep 09 14:21	11°II07'38		direct	3859 Mar 01 11:26	16°II40'23	
opposition	3850 Dec 02 10:33	10°II08'18	-15°-51'-40				
min. Earth dist.	3850 Dec 01 13:54	10°II09'16	48.46620 AU	conjunction	3859 Jun 07 20:21	18°II05'34	-14°-11'-9
direct	3851 Feb 21 21:29	9°II10'02		minimum elong	3859 Jun 07 20:32	18°II05'35	14°11'10
				max. Earth dist.	3859 Jun 08 09:37	18°II06'19	50.27991 AU
conjunction	3851 May 31 04:25	10°II35'30	-15°-11'-10	retrograde	3859 Sep 18 09:25	19°II34'02	
minimum elong	3851 May 31 04:35	10°II35'30	15°11'11	opposition	3859 Dec 11 01:22	18°II34'48	-14°-41'-31
max. Earth dist.	3851 Jun 01 02:02	10°II36'43	50.39448 AU	min. Earth dist.	3859 Dec 10 13:49	18°II35'20	48.32835 AU

direct	3860 Mar 01 15:02	17°II36'29		minimum elong	3868 Jun 15 18:36	26°II33'06	12°46'31
				max. Earth dist.	3868 Jun 15 19:30	26°II33'10	49.84080 AU
conjunction	3860 Jun 08 01:19	19°II01'43	-14°-2'-35	retrograde	3868 Sep 26 05:59	28°II01'45	
minimum elong	3860 Jun 08 01:29	19°II01'44	14°02'37	opposition	3868 Dec 18 15:30	27°II02'26	-13°-12'-45
max. Earth dist.	3860 Jun 08 12:23	19°II02'21	50.25019 AU	min. Earth dist.	3868 Dec 18 15:16	27°II02'27	47.85746 AU
retrograde	3860 Sep 18 14:27	20°II30'12		direct	3869 Mar 10 07:17	26°II03'50	
opposition	3860 Dec 11 05:34	19°II31'00	-14°-32'-31				
min. Earth dist.	3860 Dec 10 19:27	19°II31'28	48.29532 AU	conjunction	3869 Jun 16 23:41	27°II29'33	-12°-35'-59
direct	3861 Mar 02 18:06	18°II32'41		minimum elong	3869 Jun 16 23:52	27°II29'34	12°36'01
				max. Earth dist.	3869 Jun 17 00:38	27°II29'37	49.77214 AU
conjunction	3861 Jun 09 06:32	19°II58'00	-13°-53'-49	retrograde	3869 Sep 27 11:11	28°II58'16	
minimum elong	3861 Jun 09 06:44	19°II58'00	13°53'50	opposition	3869 Dec 19 19:43	27°II58'55	-13°-1'-43
max. Earth dist.	3861 Jun 09 17:13	19°II58'36	50.21610 AU	min. Earth dist.	3869 Dec 19 19:27	27°II58'56	47.78592 AU
retrograde	3861 Sep 19 17:22	21°II26'30		direct	3870 Mar 11 10:38	27°II00'16	
opposition	3861 Dec 12 09:53	20°II27'19	-14°-23'-18				
min. Earth dist.	3861 Dec 12 01:30	20°II27'43	48.25746 AU	conjunction	3870 Jun 18 04:43	28°II26'05	-12°-25'-14
direct	3862 Mar 04 00:34	19°II29'01		minimum elong	3870 Jun 18 04:55	28°II26'06	12°25'14
				max. Earth dist.	3870 Jun 18 03:46	28°II26'02	49.70067 AU
conjunction	3862 Jun 10 11:37	20°II54'22	-13°-44'-50	retrograde	3870 Sep 28 17:19	29°II54'52	
minimum elong	3862 Jun 10 11:48	20°II54'23	13°44'50	opposition	3870 Dec 21 00:02	28°II55'30	-12°-50'-26
max. Earth dist.	3862 Jun 10 20:24	20°II54'52	50.17705 AU	min. Earth dist.	3870 Dec 21 00:52	28°II55'27	47.71166 AU
retrograde	3862 Sep 20 22:27	22°II22'54		direct	3871 Mar 12 12:46	27°II56'48	
opposition	3862 Dec 13 14:06	21°II23'44	-14°-13'-53				
min. Earth dist.	3862 Dec 13 06:14	21°II24'06	48.21441 AU	conjunction	3871 Jun 19 10:02	29°II22'44	-12°-14'-13
direct	3863 Mar 05 05:35	20°II25'26		minimum elong	3871 Jun 19 10:13	29°II22'45	12°14'15
				max. Earth dist.	3871 Jun 19 09:01	29°II22'41	49.62634 AU
conjunction	3863 Jun 11 16:47	21°II50'49	-13°-35'-38				
minimum elong	3863 Jun 11 16:58	21°II50'50	13°35'40	retrograde	3871 Jul 17 16:53	0°☾	
max. Earth dist.	3863 Jun 11 23:43	21°II51'13	50.13256 AU		3871 Sep 29 19:58	0°☾51'35	
retrograde	3863 Sep 22 05:49	23°II19'23			3871 Dec 15 06:02	30°RII	
opposition	3863 Dec 14 18:29	22°II20'13	-14°-4'-15	opposition	3871 Dec 22 04:23	29°II52'12	-12°-38'-55
min. Earth dist.	3863 Dec 14 12:55	22°II20'28	48.16594 AU	min. Earth dist.	3871 Dec 22 06:30	29°II52'06	47.63429 AU
direct	3864 Mar 05 08:53	21°II21'53		direct	3872 Mar 12 19:05	28°II53'28	
					3872 Jun 05 03:30	0°☾	
conjunction	3864 Jun 11 21:59	22°II47'19	-13°-26'-15	conjunction	3872 Jun 19 15:20	0°☾19'32	-12°-2'-59
minimum elong	3864 Jun 11 22:10	22°II47'19	13°26'15	minimum elong	3872 Jun 19 15:32	0°☾19'33	12°03'00
max. Earth dist.	3864 Jun 12 04:21	22°II47'40	50.08288 AU	max. Earth dist.	3872 Jun 19 12:53	0°☾19'24	49.54882 AU
retrograde	3864 Sep 22 12:05	24°II15'52		retrograde	3872 Sep 30 00:20	1°☾48'29	
opposition	3864 Dec 14 22:42	23°II16'41	-13°-54'-24	opposition	3872 Dec 22 08:42	0°☾49'05	-12°-27'-8
min. Earth dist.	3864 Dec 14 17:41	23°II16'55	48.11226 AU	min. Earth dist.	3872 Dec 22 11:08	0°☾48'58	47.55337 AU
direct	3865 Mar 06 11:03	22°II18'18			3873 Feb 11 18:20	30°RII	
				direct	3873 Mar 14 00:14	29°II50'19	
conjunction	3865 Jun 13 03:06	23°II43'47	-13°-16'-39		3873 Apr 12 22:56	0°☾	
minimum elong	3865 Jun 13 03:17	23°II43'48	13°16'40				
max. Earth dist.	3865 Jun 13 07:04	23°II44'01	50.02822 AU	conjunction	3873 Jun 20 20:50	1°☾16'31	-11°-51'-31
retrograde	3865 Sep 23 17:55	25°II12'21		minimum elong	3873 Jun 20 21:01	1°☾16'31	11°51'32
opposition	3865 Dec 16 02:51	24°II13'09	-13°-44'-21	max. Earth dist.	3873 Jun 20 16:43	1°☾16'17	49.46716 AU
min. Earth dist.	3865 Dec 15 23:21	24°II13'19	48.05405 AU	retrograde	3873 Oct 01 06:50	2°☾45'35	
direct	3866 Mar 07 14:04	23°II14'42		opposition	3873 Dec 23 13:07	1°☾46'09	-12°-15'-9
				min. Earth dist.	3873 Dec 23 17:51	1°☾45'56	47.46804 AU
conjunction	3866 Jun 14 08:18	24°II40'14	-13°-6'-50	direct	3874 Mar 15 04:57	0°☾47'20	
minimum elong	3866 Jun 14 08:29	24°II40'15	13°06'50				
max. Earth dist.	3866 Jun 14 11:56	24°II40'27	49.96924 AU	conjunction	3874 Jun 22 02:31	2°☾13'40	-11°-39'-50
retrograde	3866 Sep 24 18:21	26°II08'49		minimum elong	3874 Jun 22 02:43	2°☾13'41	11°39'52
opposition	3866 Dec 17 07:06	25°II09'35	-13°-34'-3	max. Earth dist.	3874 Jun 21 21:51	2°☾13'24	49.38090 AU
min. Earth dist.	3866 Dec 17 04:51	25°II09'41	47.99176 AU	retrograde	3874 Oct 02 13:59	3°☾42'50	
direct	3867 Mar 08 21:53	24°II11'05		opposition	3874 Dec 24 17:38	2°☾43'23	-12°-2'-56
				min. Earth dist.	3874 Dec 24 22:54	2°☾43'08	47.37771 AU
conjunction	3867 Jun 15 13:14	25°II36'40	-12°-56'-47	direct	3875 Mar 16 07:56	1°☾44'30	
minimum elong	3867 Jun 15 13:25	25°II36'41	12°56'49				
max. Earth dist.	3867 Jun 15 15:36	25°II36'48	49.90668 AU	conjunction	3875 Jun 23 07:59	3°☾10'58	-11°-27'-57
retrograde	3867 Sep 25 22:16	27°II05'17		minimum elong	3875 Jun 23 08:10	3°☾10'59	11°27'58
opposition	3867 Dec 18 11:17	26°II06'00	-13°-23'-31	max. Earth dist.	3875 Jun 23 00:42	3°☾10'33	49.28947 AU
min. Earth dist.	3867 Dec 18 09:11	26°II06'06	47.92613 AU	retrograde	3875 Oct 03 21:35	4°☾40'14	
direct	3868 Mar 09 04:06	25°II07'27		opposition	3875 Dec 25 22:18	3°☾40'44	-11°-50'-29
				min. Earth dist.	3875 Dec 26 05:16	3°☾40'24	47.28222 AU
conjunction	3868 Jun 15 18:24	26°II33'06	-12°-46'-30	direct	3876 Mar 16 10:16	2°☾41'46	

conjunction	3876 Jun 23 13:49	4°08'23	-11°-15'-51	retrograde	3884 Oct 11 23:44	13°02'23	20
minimum elong	3876 Jun 23 14:01	4°08'23	11°15'53	opposition	3885 Jan 02 17:23	12°02'31	15 -9°-47'-48
max. Earth dist.	3876 Jun 23 05:53	4°07'56	49.19281 AU	min. Earth dist.	3885 Jan 03 09:09	12°02'23	30 46.24632 AU
retrograde	3876 Oct 04 00:17	5°03'745		direct	3885 Mar 25 07:41	11°02'32	29
opposition	3876 Dec 26 02:51	4°03'810	-11°-37'-50				
min. Earth dist.	3876 Dec 26 11:21	4°03'746	47.18154 AU	conjunction	3885 Jul 02 19:47	12°05'15	55 -9°-16'-28
direct	3877 Mar 17 17:10	3°03'907		minimum elong	3885 Jul 02 19:59	12°05'15	56 9°16'29
				max. Earth dist.	3885 Jul 02 00:55	12°05'05	50 48.15438 AU
conjunction	3877 Jun 24 19:36	5°05'52	-11°-3'-32	retrograde	3885 Oct 13 09:50	14°02'24	9
minimum elong	3877 Jun 24 19:47	5°05'53	11°03'33	opposition	3886 Jan 03 22:40	13°02'24	1 -9°-32'-54
max. Earth dist.	3877 Jun 24 09:58	5°05'19	49.09135 AU	min. Earth dist.	3886 Jan 04 16:12	13°02'15	50 46.11432 AU
retrograde	3877 Oct 05 04:09	6°03'521		direct	3886 Mar 26 09:03	12°02'24	9
opposition	3877 Dec 27 07:26	5°03'542	-11°-24'-57	max. Earth dist.	3886 Jul 03 06:57	13°05'02	24 48.02129 AU
min. Earth dist.	3877 Dec 27 16:27	5°03'516	47.07633 AU				
direct	3878 Mar 18 23:40	4°03'632		conjunction	3886 Jul 04 02:25	13°05'13	32 -9°-2'00
				minimum elong	3886 Jul 04 02:35	13°05'13	32 9°02'01
conjunction	3878 Jun 26 01:15	6°03'27	-10°-50'-59	retrograde	3886 Oct 14 14:58	15°02'23	39
minimum elong	3878 Jun 26 01:27	6°03'27	10°51'01	opposition	3887 Jan 05 04:06	14°02'22	26 -9°-17'-46
max. Earth dist.	3878 Jun 25 14:04	6°02'48	48.98542 AU	min. Earth dist.	3887 Jan 05 23:01	14°02'13	32 45.97728 AU
retrograde	3878 Oct 06 11:03	7°03'303		direct	3887 Mar 27 15:33	13°02'22	28
opposition	3878 Dec 28 12:11	6°03'320	-11°-11'-50	max. Earth dist.	3887 Jul 04 11:48	14°05'01	12 47.88320 AU
min. Earth dist.	3878 Dec 28 23:13	6°03'248	46.96704 AU				
direct	3879 Mar 20 04:02	5°03'404		conjunction	3887 Jul 05 09:10	14°05'12	27 -8°-47'-19
				minimum elong	3887 Jul 05 09:21	14°05'12	27 8°47'21
conjunction	3879 Jun 27 07:06	7°01'08	-10°-38'-13	retrograde	3887 Oct 15 18:54	16°02'24	8
minimum elong	3879 Jun 27 07:18	7°01'09	10°38'14	opposition	3888 Jan 06 09:30	15°02'22	29 -9°-2'-24
max. Earth dist.	3879 Jun 26 19:41	7°00'29	48.87585 AU	min. Earth dist.	3888 Jan 07 05:15	15°02'13	32 45.83515 AU
retrograde	3879 Oct 07 17:03	8°03'052		direct	3888 Mar 27 23:31	14°02'22	23
opposition	3879 Dec 29 16:47	7°03'104	-10°-58'-28				
min. Earth dist.	3879 Dec 30 03:51	7°03'033	46.85428 AU	conjunction	3888 Jul 05 16:05	15°05'13	37 -8°-32'-24
direct	3880 Mar 20 07:50	6°03'143		minimum elong	3888 Jul 05 16:15	15°05'13	38 8°32'25
				max. Earth dist.	3888 Jul 04 16:46	15°05'01	16 47.73978 AU
conjunction	3880 Jun 27 12:53	7°05'858	-10°-25'-12	retrograde	3888 Oct 16 00:54	17°02'31	12
minimum elong	3880 Jun 27 13:04	7°05'858	10°25'14	opposition	3889 Jan 06 15:11	16°02'24	46 -8°-46'-48
max. Earth dist.	3880 Jun 26 23:25	7°05'812	48.76299 AU	min. Earth dist.	3889 Jan 07 13:12	16°02'14	42 45.68782 AU
retrograde	3880 Oct 08 00:30	9°02'851		direct	3889 Mar 29 06:26	15°02'23	31
opposition	3880 Dec 29 21:36	8°02'859	-10°-44'-51				
min. Earth dist.	3880 Dec 30 10:02	8°02'823	46.73851 AU	conjunction	3889 Jul 06 23:08	16°05'20	1 -8°-17'-16
direct	3881 Mar 21 10:42	7°02'932		minimum elong	3889 Jul 06 23:18	16°05'20	1 8°17'17
				max. Earth dist.	3889 Jul 05 23:11	16°05'03	37 47.59147 AU
conjunction	3881 Jun 28 18:56	8°05'659	-10°-11'-57	retrograde	3889 Oct 17 07:59	18°02'34	9
minimum elong	3881 Jun 28 19:07	8°05'700	10°11'57	opposition	3890 Jan 07 20:41	17°02'31	15 -8°-30'-57
max. Earth dist.	3881 Jun 28 05:21	8°05'612	48.64713 AU	min. Earth dist.	3890 Jan 08 19:01	17°02'21	10 45.53578 AU
retrograde	3881 Oct 09 03:51	10°02'701		direct	3890 Mar 30 11:39	16°02'25	50
opposition	3881 Dec 31 02:23	9°02'706	-10°-30'-58	max. Earth dist.	3890 Jul 07 03:51	17°05'10	4 47.43871 AU
min. Earth dist.	3881 Dec 31 15:49	9°02'627	46.61980 AU				
direct	3882 Mar 22 17:29	8°02'733		conjunction	3890 Jul 08 06:07	17°05'23	36 -8°-1'-53
max. Earth dist.	3882 Jun 29 09:59	9°05'423	48.52864 AU	minimum elong	3890 Jul 08 06:17	17°05'23	36 8°01'54
				retrograde	3890 Oct 18 17:16	19°02'43	38
conjunction	3882 Jun 30 00:54	9°05'514	-9°-58'-27	opposition	3891 Jan 09 02:28	18°02'35	55 -8°-14'-51
minimum elong	3882 Jun 30 01:05	9°05'515	9°58'28	min. Earth dist.	3891 Jan 10 02:31	18°02'24	45 45.37976 AU
retrograde	3882 Oct 10 08:49	11°02'528		direct	3891 Mar 31 15:07	17°02'32	20
opposition	3883 Jan 01 07:17	10°02'529	-10°-16'-50	max. Earth dist.	3891 Jul 08 10:44	18°05'14	9 47.28212 AU
min. Earth dist.	3883 Jan 01 20:48	10°02'450	46.49848 AU				
direct	3883 Mar 23 22:59	9°02'552		conjunction	3891 Jul 09 13:14	18°05'32	22 -7°-46'-16
				minimum elong	3891 Jul 09 13:23	18°05'32	23 7°46'17
conjunction	3883 Jul 01 06:55	10°05'346	-9°-44'-42	retrograde	3891 Oct 19 23:35	20°02'53	38
minimum elong	3883 Jul 01 07:07	10°05'347	9°44'43	opposition	3892 Jan 10 08:21	19°02'44	47 -7°-58'-30
max. Earth dist.	3883 Jun 30 14:47	10°05'251	48.40728 AU	min. Earth dist.	3892 Jan 11 09:22	19°02'34	34 45.22013 AU
retrograde	3883 Oct 11 15:27	12°02'414		direct	3892 Mar 31 21:44	18°02'40	1
opposition	3884 Jan 02 12:26	11°02'412	-10°-2'-26				
min. Earth dist.	3884 Jan 03 03:51	11°02'327	46.37416 AU	conjunction	3892 Jul 09 20:30	19°05'42	22 -7°-30'-24
direct	3884 Mar 24 04:22	10°02'430		minimum elong	3892 Jul 09 20:39	19°05'42	22 7°30'24
				max. Earth dist.	3892 Jul 08 16:28	19°05'24	43 47.12233 AU
conjunction	3884 Jul 01 13:20	11°05'240	-9°-30'-42	retrograde	3892 Oct 20 06:18	21°02'65	3
minimum elong	3884 Jul 01 13:30	11°05'240	9°30'43	opposition	3893 Jan 10 14:09	20°02'55	53 -7°-41'-52
max. Earth dist.	3884 Jun 30 20:55	11°05'143	48.28279 AU	min. Earth dist.	3893 Jan 11 15:31	20°02'43	38 45.05759 AU

direct	3893 Apr 02 04:08	19° \mathring{O} 24'56		conjunction	3901 Jul 20 21:52	29° \mathring{O} 21'04	-4°-56'-4
max. Earth dist.	3893 Jul 09 22:43	20° \mathring{O} 53'52	46.95960 AU	minimum elong	3901 Jul 20 21:59	29° \mathring{O} 21'05	4°56'05
					3901 Aug 17 09:06	0° \mathring{O}	
conjunction	3893 Jul 11 03:57	20° \mathring{O} 55'36	-7°-14'-16	retrograde	3901 Oct 31 09:19	0° \mathring{O} 56'47	
minimum elong	3893 Jul 11 04:06	20° \mathring{O} 55'36	7°14'18		3902 Jan 16 13:56	30° \mathring{R} \mathring{O}	
retrograde	3893 Oct 21 11:44	22° \mathring{O} 28'24		opposition	3902 Jan 21 02:49	29° \mathring{O} 54'33	-5°00'-2
opposition	3894 Jan 11 20:22	21° \mathring{O} 27'15	-7°-24'-58	min. Earth dist.	3902 Jan 22 14:25	29° \mathring{O} 52'46	43.45321 AU
min. Earth dist.	3894 Jan 12 23:27	21° \mathring{O} 25'56	44.89237 AU	direct	3902 Apr 12 13:31	28° \mathring{O} 52'03	
direct	3894 Apr 03 11:39	20° \mathring{O} 26'09			3902 Jul 03 23:41	0° \mathring{O}	
max. Earth dist.	3894 Jul 11 06:04	21° \mathring{O} 55'24	46.79445 AU	max. Earth dist.	3902 Jul 20 14:18	0° \mathring{O} 23'57	45.34905 AU
conjunction	3894 Jul 12 11:23	21° \mathring{O} 57'08	-6°-57'-53	conjunction	3902 Jul 22 06:46	0° \mathring{O} 26'25	-4°-37'-40
minimum elong	3894 Jul 12 11:32	21° \mathring{O} 57'09	6°57'54	minimum elong	3902 Jul 22 06:53	0° \mathring{O} 26'26	4°37'42
retrograde	3894 Oct 22 18:59	23° \mathring{O} 30'15		retrograde	3902 Nov 01 19:52	2° \mathring{O} 02'32	
opposition	3895 Jan 13 02:33	22° \mathring{O} 28'59	-7°-7'-48	opposition	3903 Jan 22 10:23	1° \mathring{O} 00'06	-4°-40'-43
min. Earth dist.	3895 Jan 14 05:28	22° \mathring{O} 27'39	44.72474 AU	min. Earth dist.	3903 Jan 23 22:44	0° \mathring{O} 58'16	43.25513 AU
direct	3895 Apr 04 17:55	21° \mathring{O} 27'42			3903 Mar 29 20:00	30° \mathring{R} \mathring{O}	
max. Earth dist.	3895 Jul 12 11:36	22° \mathring{O} 57'12	46.62685 AU	direct	3903 Apr 13 20:52	29° \mathring{O} 57'22	
					3903 Apr 28 23:05	0° \mathring{O}	
conjunction	3895 Jul 13 19:00	22° \mathring{O} 59'04	-6°-41'-14	max. Earth dist.	3903 Jul 21 22:35	1° \mathring{O} 29'40	45.15017 AU
minimum elong	3895 Jul 13 19:08	22° \mathring{O} 59'05	6°41'16				
retrograde	3895 Oct 24 06:05	24° \mathring{O} 32'30		conjunction	3903 Jul 23 16:06	1° \mathring{O} 32'13	-4°-19'-1
opposition	3896 Jan 14 08:55	23° \mathring{O} 31'07	-6°-50'-21	minimum elong	3903 Jul 23 16:12	1° \mathring{O} 32'13	4°19'01
min. Earth dist.	3896 Jan 15 13:23	23° \mathring{O} 29'43	44.55468 AU	retrograde	3903 Nov 03 02:27	3° \mathring{O} 08'44	
direct	3896 Apr 04 20:35	22° \mathring{O} 29'42		opposition	3904 Jan 23 18:08	2° \mathring{O} 06'06	-4°-21'-7
max. Earth dist.	3896 Jul 12 19:32	23° \mathring{O} 59'35	46.45652 AU	min. Earth dist.	3904 Jan 25 08:12	2° \mathring{O} 04'11	43.05393 AU
				direct	3904 Apr 14 06:18	1° \mathring{O} 03'08	
conjunction	3896 Jul 14 03:00	24° \mathring{O} 01'27	-6°-24'-20	max. Earth dist.	3904 Jul 22 07:39	2° \mathring{O} 35'52	44.94857 AU
minimum elong	3896 Jul 14 03:09	24° \mathring{O} 01'28	6°24'21				
retrograde	3896 Oct 24 14:02	25° \mathring{O} 35'15		conjunction	3904 Jul 24 01:38	2° \mathring{O} 38'27	-4°00'-5
opposition	3897 Jan 14 15:28	24° \mathring{O} 33'44	-6°-32'-37	minimum elong	3904 Jul 24 01:44	2° \mathring{O} 38'28	4°00'07
min. Earth dist.	3897 Jan 15 20:48	24° \mathring{O} 32'18	44.38153 AU	retrograde	3904 Nov 03 09:38	4° \mathring{O} 15'25	
direct	3897 Apr 06 03:02	23° \mathring{O} 32'10		opposition	3905 Jan 24 02:01	3° \mathring{O} 12'35	-4°-1'-14
max. Earth dist.	3897 Jul 14 01:51	25° \mathring{O} 02'22	46.28288 AU	min. Earth dist.	3905 Jan 25 16:01	3° \mathring{O} 10'39	42.85024 AU
				direct	3905 Apr 15 15:53	2° \mathring{O} 09'23	
conjunction	3897 Jul 15 11:04	25° \mathring{O} 04'21	-6°-7'-11	max. Earth dist.	3905 Jul 23 15:17	3° \mathring{O} 42'29	44.74452 AU
minimum elong	3897 Jul 15 11:12	25° \mathring{O} 04'22	6°07'12				
retrograde	3897 Oct 25 21:37	26° \mathring{O} 38'30		conjunction	3905 Jul 25 11:15	3° \mathring{O} 45'12	-3°-40'-54
opposition	3898 Jan 15 22:04	25° \mathring{O} 36'53	-6°-14'-38	minimum elong	3905 Jul 25 11:20	3° \mathring{O} 45'12	3°40'55
min. Earth dist.	3898 Jan 17 04:16	25° \mathring{O} 35'24	44.20482 AU	retrograde	3905 Nov 04 21:14	5° \mathring{O} 22'37	
direct	3898 Apr 07 10:21	24° \mathring{O} 35'10		opposition	3906 Jan 25 10:13	4° \mathring{O} 19'35	-3°-41'-4
max. Earth dist.	3898 Jul 15 08:40	26° \mathring{O} 05'41	46.10511 AU	min. Earth dist.	3906 Jan 27 01:48	4° \mathring{O} 17'34	42.64449 AU
				direct	3906 Apr 16 21:04	3° \mathring{O} 16'08	
conjunction	3898 Jul 16 19:27	26° \mathring{O} 07'47	-5°-49'-47	max. Earth dist.	3906 Jul 25 01:30	4° \mathring{O} 49'46	44.53856 AU
minimum elong	3898 Jul 16 19:36	26° \mathring{O} 07'47	5°49'47				
retrograde	3898 Oct 27 04:22	27° \mathring{O} 42'20		conjunction	3906 Jul 26 21:14	4° \mathring{O} 52'29	-3°-21'-27
opposition	3899 Jan 17 05:04	26° \mathring{O} 40'34	-5°-56'-23	minimum elong	3906 Jul 26 21:19	4° \mathring{O} 52'29	3°21'29
min. Earth dist.	3899 Jan 18 13:21	26° \mathring{O} 38'58	44.02376 AU	retrograde	3906 Nov 06 07:35	6° \mathring{O} 30'23	
direct	3899 Apr 08 18:42	25° \mathring{O} 38'41		opposition	3907 Jan 26 18:38	5° \mathring{O} 27'09	-3°-20'-37
max. Earth dist.	3899 Jul 16 16:24	27° \mathring{O} 09'35	45.92291 AU	min. Earth dist.	3907 Jan 28 10:22	5° \mathring{O} 25'07	42.43690 AU
				direct	3907 Apr 18 04:08	4° \mathring{O} 23'28	
conjunction	3899 Jul 18 03:58	27° \mathring{O} 11'44	-5°-32'-7	max. Earth dist.	3907 Jul 26 09:54	5° \mathring{O} 57'32	44.33088 AU
minimum elong	3899 Jul 18 04:06	27° \mathring{O} 11'44	5°32'08				
retrograde	3899 Oct 28 12:41	28° \mathring{O} 46'40		conjunction	3907 Jul 28 07:15	6° \mathring{O} 00'22	-3°-1'-45
opposition	3900 Jan 18 12:08	27° \mathring{O} 44'46	-5°-37'-52	minimum elong	3907 Jul 28 07:19	6° \mathring{O} 00'22	3°01'45
min. Earth dist.	3900 Jan 19 20:43	27° \mathring{O} 43'09	43.83805 AU	retrograde	3907 Nov 07 20:09	7° \mathring{O} 38'46	
direct	3900 Apr 10 01:37	26° \mathring{O} 42'42		opposition	3908 Jan 28 03:17	6° \mathring{O} 35'20	-2°-59'-53
max. Earth dist.	3900 Jul 17 22:38	28° \mathring{O} 13'52	45.73591 AU	min. Earth dist.	3908 Jan 29 19:50	6° \mathring{O} 33'16	42.22759 AU
				direct	3908 Apr 18 11:24	5° \mathring{O} 31'26	
conjunction	3900 Jul 19 12:47	28° \mathring{O} 16'10	-5°-14'-13	max. Earth dist.	3908 Jul 26 19:41	7° \mathring{O} 06'02	44.12104 AU
minimum elong	3900 Jul 19 12:54	28° \mathring{O} 16'11	5°14'15				
retrograde	3900 Oct 29 23:32	29° \mathring{O} 51'30		conjunction	3908 Jul 28 17:50	7° \mathring{O} 08'55	-2°-41'-46
opposition	3901 Jan 19 19:23	28° \mathring{O} 49'26	-5°-19'-5	minimum elong	3908 Jul 28 17:54	7° \mathring{O} 08'55	2°41'47
min. Earth dist.	3901 Jan 21 06:07	28° \mathring{O} 47'42	43.64777 AU	retrograde	3908 Nov 08 05:46	8° \mathring{O} 47'51	
direct	3901 Apr 11 06:28	27° \mathring{O} 47'09		opposition	3909 Jan 28 12:11	7° \mathring{O} 44'14	-2°-38'-52
max. Earth dist.	3901 Jul 19 07:17	29° \mathring{O} 18'44	45.54444 AU	min. Earth dist.	3909 Jan 30 06:15	7° \mathring{O} 42'04	42.01594 AU
				direct	3909 Apr 19 22:07	6° \mathring{O} 40'06	

max. Earth dist.	3909 Jul 28 05:45	8°Ω15'14	43.90871 AU	behind sun end	3916 Aug 07 22:58	16°Ω43'44	
				retrograde	3916 Nov 18 03:47	18°Ω27'03	
conjunction	3909 Jul 30 04:40	8°Ω18'12	-2°-21'-31	opposition	3917 Feb 06 21:41	17°Ω21'29	0°19'15
minimum elong	3909 Jul 30 04:44	8°Ω18'12	2°21'32	min. Earth dist.	3917 Feb 08 23:43	17°Ω18'48	40.19983 AU
retrograde	3909 Nov 09 15:39	9°Ω57'40		direct	3917 Apr 29 05:36	16°Ω15'03	
opposition	3910 Jan 29 21:19	8°Ω53'52	-2°-17'-33	max. Earth dist.	3917 Aug 06 20:38	17°Ω54'42	42.08186 AU
min. Earth dist.	3910 Jan 31 15:33	8°Ω51'41	41.80149 AU				
direct	3910 Apr 21 08:25	7°Ω49'30		conjunction	3917 Aug 09 06:15	17°Ω58'30	0°29'31
max. Earth dist.	3910 Jul 29 14:37	9°Ω25'06	43.69297 AU	minimum elong	3917 Aug 09 06:14	17°Ω58'30	0°29'30
				retrograde	3917 Nov 19 19:20	19°Ω42'52	
conjunction	3910 Jul 31 15:38	9°Ω28'13	-2°-1'-2	opposition	3918 Feb 08 09:19	18°Ω37'02	0°42'45
minimum elong	3910 Jul 31 15:41	9°Ω28'13	2°01'03	min. Earth dist.	3918 Feb 10 12:36	18°Ω34'16	39.96090 AU
retrograde	3910 Nov 11 02:38	11°Ω08'15		direct	3918 Apr 30 14:27	17°Ω30'16	
opposition	3911 Jan 31 06:56	10°Ω04'15	-1°-55'-59	max. Earth dist.	3918 Aug 08 10:13	19°Ω10'41	41.84208 AU
min. Earth dist.	3911 Feb 02 03:20	10°Ω01'56	41.58347 AU				
direct	3911 Apr 22 16:37	8°Ω59'38		conjunction	3918 Aug 10 19:49	19°Ω14'30	0°52'00
max. Earth dist.	3911 Jul 31 01:48	10°Ω35'49	43.47340 AU	minimum elong	3918 Aug 10 19:47	19°Ω14'29	0°52'00
				retrograde	3918 Nov 21 10:13	20°Ω59'35	
conjunction	3911 Aug 02 03:12	10°Ω38'58	-1°-40'-16	opposition	3919 Feb 09 21:20	19°Ω53'28	1°06'30
minimum elong	3911 Aug 02 03:14	10°Ω38'58	1°40'18	min. Earth dist.	3919 Feb 12 01:12	19°Ω50'40	39.72078 AU
retrograde	3911 Nov 12 14:16	12°Ω19'35		direct	3919 May 02 02:13	18°Ω46'24	
opposition	3912 Feb 01 16:37	11°Ω15'21	-1°-34'-7	max. Earth dist.	3919 Aug 09 23:06	20°Ω27'31	41.60133 AU
min. Earth dist.	3912 Feb 03 13:37	11°Ω13'00	41.36142 AU				
direct	3912 Apr 23 01:36	10°Ω10'28		conjunction	3919 Aug 12 09:48	20°Ω31'27	1°14'43
max. Earth dist.	3912 Jul 31 11:03	11°Ω47'07	43.24975 AU	minimum elong	3919 Aug 12 09:46	20°Ω31'27	1°14'42
				retrograde	3919 Nov 23 02:53	22°Ω17'16	
conjunction	3912 Aug 02 14:57	11°Ω50'26	-1°-19'-16	opposition	3920 Feb 11 09:29	21°Ω10'54	1°30'30
minimum elong	3912 Aug 02 14:59	11°Ω50'26	1°19'18	min. Earth dist.	3920 Feb 13 13:31	21°Ω08'05	39.47979 AU
retrograde	3912 Nov 13 05:08	13°Ω31'38		direct	3920 May 02 14:04	20°Ω03'32	
opposition	3913 Feb 02 02:43	12°Ω27'09	-1°-12'00	max. Earth dist.	3920 Aug 10 12:28	21°Ω45'24	41.35933 AU
min. Earth dist.	3913 Feb 04 01:09	12°Ω24'43	41.13545 AU				
direct	3913 Apr 24 09:02	11°Ω21'59		conjunction	3920 Aug 13 00:20	21°Ω49'26	1°37'40
max. Earth dist.	3913 Aug 01 22:19	12°Ω59'13	43.02204 AU	minimum elong	3920 Aug 13 00:17	21°Ω49'26	1°37'41
				retrograde	3920 Nov 23 15:45	23°Ω36'03	
conjunction	3913 Aug 04 03:04	13°Ω02'37	0°-58'-1	opposition	3921 Feb 11 22:16	22°Ω29'25	1°54'46
minimum elong	3913 Aug 04 03:05	13°Ω02'37	0°58'02	min. Earth dist.	3921 Feb 14 03:59	22°Ω26'29	39.23747 AU
retrograde	3913 Nov 14 16:48	14°Ω44'24		direct	3921 May 04 03:11	21°Ω21'45	
opposition	3914 Feb 03 13:05	13°Ω39'39	0°-49'-35	max. Earth dist.	3921 Aug 12 03:13	23°Ω04'27	41.11579 AU
min. Earth dist.	3914 Feb 05 12:58	13°Ω37'08	40.90566 AU				
direct	3914 Apr 25 19:43	12°Ω34'11		conjunction	3921 Aug 14 15:12	23°Ω08'32	2°00'51
max. Earth dist.	3914 Aug 03 09:29	14°Ω11'59	42.79094 AU	minimum elong	3921 Aug 14 15:08	23°Ω08'32	2°00'51
				retrograde	3921 Nov 25 04:59	24°Ω55'57	
conjunction	3914 Aug 05 15:21	14°Ω15'28	0°-36'-31	opposition	3922 Feb 13 11:16	23°Ω49'04	2°19'17
minimum elong	3914 Aug 05 15:22	14°Ω15'28	0°36'31	min. Earth dist.	3922 Feb 15 17:01	23°Ω46'07	38.99339 AU
	3914 Sep 04 05:00	15°Ω		direct	3922 May 05 16:51	22°Ω41'05	
retrograde	3914 Nov 16 04:10	15°Ω57'51		max. Earth dist.	3922 Aug 13 16:15	24°Ω24'31	40.87003 AU
	3915 Jan 30 08:32	15°RΩ					
opposition	3915 Feb 04 23:36	14°Ω52'51	0°-26'-54	conjunction	3922 Aug 16 06:31	24°Ω28'46	2°24'15
min. Earth dist.	3915 Feb 06 23:48	14°Ω50'18	40.67284 AU	minimum elong	3922 Aug 16 06:26	24°Ω28'46	2°24'15
direct	3915 Apr 27 08:06	13°Ω47'04		retrograde	3922 Nov 26 21:31	26°Ω17'02	
	3915 Jul 19 08:08	15°Ω		opposition	3923 Feb 15 00:49	25°Ω09'52	2°44'02
max. Earth dist.	3915 Aug 04 20:13	15°Ω25'25	42.55678 AU	min. Earth dist.	3923 Feb 17 08:27	25°Ω06'48	38.74700 AU
				direct	3923 May 07 02:32	24°Ω01'33	
conjunction	3915 Aug 07 03:57	15°Ω29'03	0°-14'-46	max. Earth dist.	3923 Aug 15 07:57	25°Ω45'52	40.62155 AU
minimum elong	3915 Aug 07 03:57	15°Ω29'03	0°14'47				
behind sun begin	3915 Aug 07 01:38	15°Ω28'55		conjunction	3923 Aug 17 22:26	25°Ω50'09	2°47'51
behind sun end	3915 Aug 07 06:17	15°Ω29'12		minimum elong	3923 Aug 17 22:21	25°Ω50'09	2°47'51
retrograde	3915 Nov 17 15:43	17°Ω12'04		retrograde	3923 Nov 28 13:22	27°Ω39'16	
opposition	3916 Feb 06 10:36	16°Ω06'47	0°-3'-57	opposition	3924 Feb 16 14:52	26°Ω31'48	3°09'01
min. Earth dist.	3916 Feb 08 12:42	16°Ω04'07	40.43736 AU	min. Earth dist.	3924 Feb 18 23:07	26°Ω28'41	38.49769 AU
asc. node	3916 Apr 09 09:42	15°Ω04'46		direct	3924 May 07 15:40	25°Ω23'08	
direct	3916 Apr 27 18:56	15°Ω00'40		max. Earth dist.	3924 Aug 15 22:16	27°Ω08'12	40.37012 AU
max. Earth dist.	3916 Aug 05 09:19	16°Ω39'43	42.32025 AU				
				conjunction	3924 Aug 18 14:45	27°Ω12'40	3°11'39
conjunction	3916 Aug 07 17:01	16°Ω43'22	0°07'18	minimum elong	3924 Aug 18 14:39	27°Ω12'39	3°11'40
minimum elong	3916 Aug 07 17:01	16°Ω43'22	0°07'19	retrograde	3924 Nov 29 08:53	29°Ω02'37	
behind sun begin	3916 Aug 07 11:03	16°Ω43'00		opposition	3925 Feb 17 05:12	27°Ω54'50	3°34'14

min. Earth dist.	3925 Feb 19 14:32	27°05'138	38.24564 AU	retrograde	3932 Dec 11 15:44	10°05'50'36	
direct	3925 May 09 04:52	26°04'45'46		opposition	3933 Feb 28 17:31	9°05'39'51	7°02'26
max. Earth dist.	3925 Aug 17 14:03	28°03'1'41	40.11578 AU	min. Earth dist.	3933 Mar 03 08:25	9°05'36'10	36.18794 AU
				direct	3933 May 20 14:17	8°05'27'25	
conjunction	3925 Aug 20 07:37	28°03'36'16	3°35'40	max. Earth dist.	3933 Aug 29 16:34	10°05'21'13	38.04601 AU
minimum elong	3925 Aug 20 07:31	28°03'36'15	3°35'39				
	3925 Oct 15 15:07	0°05'00'00		conjunction	3933 Sep 01 14:53	10°05'26'28	6°52'58
retrograde	3925 Dec 01 02:56	0°05'27'05		minimum elong	3933 Sep 01 14:40	10°05'26'27	6°52'58
	3926 Jan 17 01:52	30°05'00'00		retrograde	3933 Dec 13 12:14	12°05'25'09	
opposition	3926 Feb 18 20:12	29°03'18'56	3°59'39	opposition	3934 Mar 02 12:29	11°05'14'04	7°28'59
min. Earth dist.	3926 Feb 21 07:04	29°03'15'38	37.99099 AU	min. Earth dist.	3934 Mar 05 02:53	11°05'10'23	35.93222 AU
direct	3926 May 10 20:37	28°03'09'29		direct	3934 May 22 09:33	10°05'01'15	
max. Earth dist.	3926 Aug 19 06:25	29°03'56'16	39.85920 AU	max. Earth dist.	3934 Aug 31 12:15	11°05'56'06	37.78838 AU
	3926 Aug 21 11:28	0°05'00'00					
conjunction	3926 Aug 22 00:38	0°05'00'56	3°59'51	conjunction	3934 Sep 03 12:15	12°05'01'32	7°18'00
minimum elong	3926 Aug 22 00:31	0°05'00'55	3°59'51	minimum elong	3934 Sep 03 12:00	12°05'01'31	7°18'00
retrograde	3926 Dec 02 20:15	1°05'52'37		retrograde	3934 Dec 15 09:54	14°05'01'22	
opposition	3927 Feb 20 11:26	0°05'44'07	4°25'18	opposition	3935 Mar 04 08:11	12°05'49'56	7°55'35
min. Earth dist.	3927 Feb 22 22:16	0°05'40'47	37.73443 AU	min. Earth dist.	3935 Mar 07 00:07	12°05'46'08	35.67649 AU
	3927 Mar 27 15:52	30°05'00'00		direct	3935 May 24 02:39	11°05'36'42	
direct	3927 May 12 13:14	29°03'34'14		max. Earth dist.	3935 Sep 02 10:58	13°05'32'48	37.53036 AU
	3927 Jun 26 17:45	0°05'00'00					
max. Earth dist.	3927 Aug 20 22:18	1°05'21'50	39.60072 AU	conjunction	3935 Sep 05 10:36	13°05'38'15	7°43'03
				minimum elong	3935 Sep 05 10:21	13°05'38'14	7°43'03
conjunction	3927 Aug 23 18:18	1°05'26'40	4°24'13	retrograde	3935 Dec 17 07:31	15°05'39'15	
minimum elong	3927 Aug 23 18:10	1°05'26'39	4°24'13	opposition	3936 Mar 05 04:25	14°05'27'27	8°22'13
retrograde	3927 Dec 04 12:05	3°05'19'15		min. Earth dist.	3936 Mar 07 20:33	14°05'23'37	35.42026 AU
opposition	3928 Feb 22 03:09	2°05'10'22	4°51'07	direct	3936 May 24 21:13	13°05'13'47	
min. Earth dist.	3928 Feb 24 15:46	2°05'06'55	37.47651 AU	max. Earth dist.	3936 Sep 03 08:05	15°05'11'01	37.27178 AU
direct	3928 May 13 04:21	1°05'00'04					
max. Earth dist.	3928 Aug 21 16:49	2°05'48'39	39.34113 AU	conjunction	3936 Sep 06 09:29	15°05'16'39	8°08'06
				minimum elong	3936 Sep 06 09:13	15°05'16'37	8°08'05
conjunction	3928 Aug 24 12:31	2°05'53'30	4°48'44	retrograde	3936 Dec 18 08:28	17°05'18'50	
minimum elong	3928 Aug 24 12:21	2°05'53'29	4°48'44	opposition	3937 Mar 07 01:23	16°05'06'39	8°48'51
retrograde	3928 Dec 05 04:22	4°05'47'00		min. Earth dist.	3937 Mar 09 18:21	16°05'02'44	35.16364 AU
opposition	3929 Feb 22 19:21	3°05'37'44	5°17'07	direct	3937 May 26 15:21	14°05'52'32	
min. Earth dist.	3929 Feb 25 07:48	3°05'34'16	37.21786 AU	max. Earth dist.	3937 Sep 05 07:23	16°05'51'00	37.01260 AU
direct	3929 May 14 20:20	2°05'27'00					
max. Earth dist.	3929 Aug 23 09:33	4°05'16'27	39.08107 AU	conjunction	3937 Sep 08 09:01	16°05'56'42	8°33'07
				minimum elong	3937 Sep 08 08:45	16°05'56'40	8°33'07
conjunction	3929 Aug 26 06:55	4°05'21'27	5°13'23	retrograde	3937 Dec 20 08:56	19°05'00'05	
minimum elong	3929 Aug 26 06:45	4°05'21'27	5°13'23	opposition	3938 Mar 08 23:06	17°05'47'30	9°15'28
retrograde	3929 Dec 07 00:21	6°05'15'55		min. Earth dist.	3938 Mar 11 16:58	17°05'43'30	34.90667 AU
opposition	3930 Feb 24 12:04	5°05'06'17	5°43'17	direct	3938 May 28 13:13	16°05'32'55	
min. Earth dist.	3930 Feb 27 01:25	5°05'02'45	36.95930 AU	max. Earth dist.	3938 Sep 07 06:56	18°05'32'36	36.75346 AU
direct	3930 May 16 09:49	3°05'55'06					
max. Earth dist.	3930 Aug 25 04:56	5°05'45'37	38.82118 AU	conjunction	3938 Sep 10 09:10	18°05'38'24	8°58'04
				minimum elong	3938 Sep 10 08:52	18°05'38'23	8°58'04
conjunction	3930 Aug 28 02:04	5°05'50'38	5°38'10	retrograde	3938 Dec 22 12:04	20°05'43'00	
minimum elong	3930 Aug 28 01:53	5°05'50'37	5°38'09	opposition	3939 Mar 10 21:13	19°05'30'00	9°42'00
retrograde	3930 Dec 08 19:42	7°05'46'06		min. Earth dist.	3939 Mar 13 14:50	19°05'26'00	34.65011 AU
opposition	3931 Feb 26 05:20	6°05'36'04	6°09'34	direct	3939 May 30 12:03	18°05'14'56	
min. Earth dist.	3931 Feb 28 19:02	6°05'32'29	36.70127 AU	max. Earth dist.	3939 Sep 09 06:53	20°05'15'51	36.49468 AU
direct	3931 May 18 02:31	5°05'24'28					
max. Earth dist.	3931 Aug 26 23:52	7°05'16'00	38.56211 AU	conjunction	3939 Sep 12 10:05	20°05'21'47	9°22'56
				minimum elong	3939 Sep 12 09:47	20°05'21'46	9°22'56
conjunction	3931 Aug 29 21:39	7°05'21'07	6°03'01	retrograde	3939 Dec 24 13:00	22°05'27'37	
minimum elong	3931 Aug 29 21:28	7°05'21'06	6°03'02	opposition	3940 Mar 11 20:15	21°05'14'10	10°08'27
retrograde	3931 Dec 10 18:17	9°05'17'36		min. Earth dist.	3940 Mar 14 15:16	21°05'10'03	34.39436 AU
opposition	3932 Feb 27 23:06	8°05'07'13	6°35'57	direct	3940 May 31 10:23	19°05'58'37	
min. Earth dist.	3932 Mar 01 12:38	8°05'03'38	36.44422 AU	max. Earth dist.	3940 Sep 10 09:02	22°05'00'53	36.23708 AU
direct	3932 May 18 20:21	6°05'55'11					
max. Earth dist.	3932 Aug 27 19:25	8°05'47'49	38.30370 AU	conjunction	3940 Sep 13 11:38	22°05'06'50	9°47'38
				minimum elong	3940 Sep 13 11:19	22°05'06'48	9°47'38
conjunction	3932 Aug 30 17:59	8°05'53'02	6°27'58	retrograde	3940 Dec 25 14:14	24°05'13'54	
minimum elong	3932 Aug 30 17:47	8°05'53'01	6°27'58	opposition	3941 Mar 13 19:48	23°05'00'01	10°34'43
				min. Earth dist.	3941 Mar 16 14:03	22°05'55'55	34.14021 AU

direct	3941 Jun 02 10:55	21° \mathring{M} 43'59		direct	3949 Jun 17 01:46	6° \mathring{A} 55'23	
max. Earth dist.	3941 Sep 12 09:58	23° \mathring{M} 47'28	35.98136 AU	max. Earth dist.	3949 Sep 28 10:05	9° \mathring{A} 10'37	34.05404 AU
conjunction	3941 Sep 15 13:47	23° \mathring{M} 53'35	10°12'09	conjunction	3949 Oct 01 11:10	9° \mathring{A} 16'59	13°15'05
minimum elong	3941 Sep 15 13:27	23° \mathring{M} 53'33	10°12'09	minimum elong	3949 Oct 01 10:48	9° \mathring{A} 16'57	13°15'06
retrograde	3941 Dec 27 16:52	26° \mathring{M} 01'55		retrograde	3950 Jan 12 21:07	11° \mathring{A} 36'18	
opposition	3942 Mar 15 20:13	24° \mathring{M} 47'36	11°00'47	opposition	3950 Mar 31 04:22	10° \mathring{A} 18'46	14°15'06
min. Earth dist.	3942 Mar 18 15:16	24° \mathring{M} 43'25	33.88856 AU	min. Earth dist.	3950 Apr 02 21:51	10° \mathring{A} 14'27	31.99812 AU
direct	3942 Jun 04 08:38	23° \mathring{M} 31'04		direct	3950 Jun 19 08:43	8° \mathring{A} 58'33	
max. Earth dist.	3942 Sep 14 14:04	25° \mathring{M} 36'01	35.72836 AU	max. Earth dist.	3950 Sep 30 18:31	11° \mathring{A} 15'10	33.82762 AU
conjunction	3942 Sep 17 16:36	25° \mathring{M} 42'05	10°36'25	conjunction	3950 Oct 03 20:25	11° \mathring{A} 21'41	13°35'33
minimum elong	3942 Sep 17 16:15	25° \mathring{M} 42'03	10°36'24	minimum elong	3950 Oct 03 20:02	11° \mathring{A} 21'39	13°35'32
retrograde	3942 Dec 29 18:45	27° \mathring{M} 51'43		retrograde	3951 Jan 15 07:27	13° \mathring{A} 42'23	
opposition	3943 Mar 17 21:24	26° \mathring{M} 36'59	11°26'36	opposition	3951 Apr 02 12:14	12° \mathring{A} 24'25	14°36'46
min. Earth dist.	3943 Mar 20 15:45	26° \mathring{M} 32'48	33.63994 AU	min. Earth dist.	3951 Apr 05 05:44	12° \mathring{A} 20'05	31.77653 AU
direct	3943 Jun 06 08:41	25° \mathring{M} 19'57		direct	3951 Jun 21 13:59	11° \mathring{A} 03'44	
max. Earth dist.	3943 Sep 16 16:57	27° \mathring{M} 26'13	35.47874 AU	max. Earth dist.	3951 Oct 03 06:15	13° \mathring{A} 21'56	33.60493 AU
conjunction	3943 Sep 19 20:10	27° \mathring{M} 32'24	11°00'23	conjunction	3951 Oct 06 06:45	13° \mathring{A} 28'23	13°55'16
minimum elong	3943 Sep 19 19:49	27° \mathring{M} 32'22	11°00'23	minimum elong	3951 Oct 06 06:23	13° \mathring{A} 28'21	13°55'16
retrograde	3943 Dec 31 23:20	29° \mathring{M} 43'22		retrograde	3952 Jan 17 16:45	15° \mathring{A} 50'27	
opposition	3944 Mar 18 23:10	28° \mathring{M} 28'13	11°52'04	opposition	3952 Apr 03 20:57	14° \mathring{A} 32'04	14°57'38
min. Earth dist.	3944 Mar 21 17:27	28° \mathring{M} 24'01	33.39508 AU	min. Earth dist.	3952 Apr 06 14:12	14° \mathring{A} 27'44	31.55889 AU
direct	3944 Jun 07 08:02	27° \mathring{M} 10'43		direct	3952 Jun 22 21:04	13° \mathring{A} 10'55	
max. Earth dist.	3944 Sep 17 22:21	29° \mathring{M} 18'29	35.23280 AU	max. Earth dist.	3952 Oct 04 17:13	15° \mathring{A} 30'33	33.38679 AU
conjunction	3944 Sep 21 00:42	29° \mathring{M} 24'39	11°24'00	conjunction	3952 Oct 07 17:39	15° \mathring{A} 37'03	14°14'09
minimum elong	3944 Sep 21 00:20	29° \mathring{M} 24'37	11°23'59	minimum elong	3952 Oct 07 17:17	15° \mathring{A} 37'01	14°14'09
	3944 Oct 08 23:18	0° \mathring{A}		retrograde	3953 Jan 19 04:47	18° \mathring{A} 00'30	
retrograde	3945 Jan 02 03:59	1° \mathring{A} 36'59		opposition	3953 Apr 06 06:29	16° \mathring{A} 41'41	15°17'36
opposition	3945 Mar 21 02:00	0° \mathring{A} 21'25	12°17'10	min. Earth dist.	3953 Apr 08 22:41	16° \mathring{A} 37'24	31.34620 AU
min. Earth dist.	3945 Mar 23 20:25	0° \mathring{A} 17'12	33.15396 AU	direct	3953 Jun 25 05:51	15° \mathring{A} 20'04	
	3945 Apr 04 06:58	30° \mathring{R} \mathring{M}		max. Earth dist.	3953 Oct 07 06:08	17° \mathring{A} 41'15	33.17386 AU
direct	3945 Jun 09 09:16	29° \mathring{M} 03'28		conjunction	3953 Oct 10 05:16	17° \mathring{A} 47'42	14°32'09
	3945 Aug 12 07:25	0° \mathring{A}		minimum elong	3953 Oct 10 04:55	17° \mathring{A} 47'40	14°32'10
max. Earth dist.	3945 Sep 20 03:30	1° \mathring{A} 12'42	34.99073 AU	retrograde	3954 Jan 21 16:08	20° \mathring{A} 12'30	
conjunction	3945 Sep 23 05:42	1° \mathring{A} 18'55	11°47'12	opposition	3954 Apr 08 17:01	18° \mathring{A} 53'16	15°36'34
minimum elong	3945 Sep 23 05:20	1° \mathring{A} 18'53	11°47'13	min. Earth dist.	3954 Apr 11 09:08	18° \mathring{A} 48'57	31.13910 AU
retrograde	3946 Jan 04 11:34	3° \mathring{A} 32'39		direct	3954 Jun 27 15:32	17° \mathring{A} 31'11	
opposition	3946 Mar 23 05:27	2° \mathring{A} 16'41	12°41'49	max. Earth dist.	3954 Oct 09 19:44	19° \mathring{A} 53'54	32.96726 AU
min. Earth dist.	3946 Mar 25 22:58	2° \mathring{A} 12'30	32.91663 AU	conjunction	3954 Oct 12 17:37	20° \mathring{A} 00'17	14°49'09
direct	3946 Jun 11 11:38	0° \mathring{A} 58'18		minimum elong	3954 Oct 12 17:16	20° \mathring{A} 00'15	14°49'09
max. Earth dist.	3946 Sep 22 09:30	3° \mathring{A} 09'00	34.75203 AU	retrograde	3955 Jan 24 06:10	22° \mathring{A} 26'25	
conjunction	3946 Sep 25 11:46	3° \mathring{A} 15'17	12°09'58	opposition	3955 Apr 11 04:06	21° \mathring{A} 06'48	15°54'26
minimum elong	3946 Sep 25 11:24	3° \mathring{A} 15'15	12°09'58	min. Earth dist.	3955 Apr 13 18:10	21° \mathring{A} 02'36	30.93862 AU
retrograde	3947 Jan 06 19:05	5° \mathring{A} 30'24		direct	3955 Jun 30 02:57	19° \mathring{A} 44'17	
opposition	3947 Mar 25 09:50	4° \mathring{A} 14'04	13°06'00	max. Earth dist.	3955 Oct 12 09:55	22° \mathring{A} 08'30	32.76763 AU
min. Earth dist.	3947 Mar 28 04:15	4° \mathring{A} 09'47	32.68258 AU	conjunction	3955 Oct 15 06:52	22° \mathring{A} 14'51	15°05'05
direct	3947 Jun 13 15:10	2° \mathring{A} 55'14		minimum elong	3955 Oct 15 06:33	22° \mathring{A} 14'49	15°05'05
max. Earth dist.	3947 Sep 24 17:17	5° \mathring{A} 07'29	34.51653 AU	retrograde	3956 Jan 26 20:20	24° \mathring{A} 42'19	
conjunction	3947 Sep 27 18:44	5° \mathring{A} 13'45	12°32'14	opposition	3956 Apr 12 16:21	23° \mathring{A} 22'20	16°11'07
minimum elong	3947 Sep 27 18:22	5° \mathring{A} 13'43	12°32'15	min. Earth dist.	3956 Apr 15 06:12	23° \mathring{A} 18'07	30.74543 AU
retrograde	3948 Jan 09 04:37	7° \mathring{A} 30'17		direct	3956 Jul 01 13:39	21° \mathring{A} 59'25	
opposition	3948 Mar 26 15:06	6° \mathring{A} 13'33	13°29'39	max. Earth dist.	3956 Oct 14 02:10	24° \mathring{A} 25'14	32.57586 AU
min. Earth dist.	3948 Mar 29 08:33	6° \mathring{A} 09'18	32.45148 AU	conjunction	3956 Oct 16 20:46	24° \mathring{A} 31'26	15°19'50
direct	3948 Jun 14 21:33	4° \mathring{A} 54'16		minimum elong	3956 Oct 16 20:27	24° \mathring{A} 31'24	15°19'50
max. Earth dist.	3948 Sep 26 00:09	7° \mathring{A} 07'55	34.28377 AU	retrograde	3957 Jan 28 12:31	27° \mathring{A} 00'12	
conjunction	3948 Sep 29 02:29	7° \mathring{A} 14'20	12°53'58	opposition	3957 Apr 15 05:20	25° \mathring{A} 39'53	16°26'31
minimum elong	3948 Sep 29 02:07	7° \mathring{A} 14'18	12°53'58	min. Earth dist.	3957 Apr 17 16:50	25° \mathring{A} 35'49	30.56001 AU
retrograde	3949 Jan 10 13:02	9° \mathring{A} 32'16		direct	3957 Jul 04 03:44	24° \mathring{A} 16'37	
opposition	3949 Mar 28 21:18	8° \mathring{A} 15'07	13°52'42	max. Earth dist.	3957 Oct 16 17:32	26° \mathring{A} 43'53	32.39213 AU
min. Earth dist.	3949 Mar 31 15:38	8° \mathring{A} 10'48	32.22327 AU				

conjunction	3957 Oct 19 11:26	26°♂50'03	15°33'21			3965 Oct 02 00:44	15°♂	
minimum elong	3957 Oct 19 11:08	26°♂50'01	15°33'21	max. Earth dist.		3965 Nov 06 06:13	16°♂19'13	31.20723 AU
retrograde	3958 Jan 31 03:59	29°♂20'07						
opposition	3958 Apr 17 19:10	27°♂59'29	16°40'33	conjunction		3965 Nov 08 08:37	16°♂24'13	16°29'03
min. Earth dist.	3958 Apr 20 06:10	27°♂55'27	30.38263 AU	minimum elong		3965 Nov 08 08:34	16°♂24'13	16°29'03
direct	3958 Jul 06 15:28	26°♂35'55		retrograde		3966 Feb 20 02:29	19°♂02'21	
max. Earth dist.	3958 Oct 19 11:41	29°♂04'45	32.21653 AU	opposition		3966 May 07 13:38	17°♂39'38	17°35'44
				min. Earth dist.		3966 May 09 11:02	17°♂36'27	29.23970 AU
conjunction	3958 Oct 22 02:51	29°♂10'43	15°45'32	direct		3966 Jul 26 05:02	16°♂13'54	
minimum elong	3958 Oct 22 02:34	29°♂10'42	15°45'32	max. Earth dist.		3966 Nov 09 04:10	18°♂52'10	31.09846 AU
	3958 Nov 13 04:25	0°♂						
retrograde	3959 Feb 02 19:53	1°♂42'02		conjunction		3966 Nov 11 04:22	18°♂56'57	16°28'33
opposition	3959 Apr 20 09:51	0°♂21'08	16°53'09	minimum elong		3966 Nov 11 04:19	18°♂56'57	16°28'33
min. Earth dist.	3959 Apr 22 18:57	0°♂17'12	30.21287 AU	retrograde		3967 Feb 22 21:57	21°♂35'43	
	3959 May 03 07:45	30°♂♂		opposition		3967 May 10 09:44	20°♂12'48	17°34'29
direct	3959 Jul 09 06:07	28°♂57'15		min. Earth dist.		3967 May 12 05:45	20°♂09'41	29.13612 AU
	3959 Sep 10 23:10	0°♂		direct		3967 Jul 29 00:00	18°♂46'52	
max. Earth dist.	3959 Oct 22 04:16	1°♂27'25	32.04865 AU	max. Earth dist.		3967 Nov 12 03:45	21°♂26'03	31.00064 AU
conjunction	3959 Oct 24 18:59	1°♂33'24	15°56'21	conjunction		3967 Nov 14 00:23	21°♂30'30	16°26'13
minimum elong	3959 Oct 24 18:45	1°♂33'23	15°56'21	minimum elong		3967 Nov 14 00:25	21°♂30'30	16°26'13
retrograde	3960 Feb 05 14:02	4°♂05'55		retrograde		3968 Feb 25 18:33	24°♂09'48	
opposition	3960 Apr 22 01:18	2°♂44'45	17°04'16	opposition		3968 May 12 06:10	22°♂46'42	17°31'14
min. Earth dist.	3960 Apr 24 09:21	2°♂40'52	30.05066 AU	min. Earth dist.		3968 May 13 22:47	22°♂43'50	29.04341 AU
direct	3960 Jul 10 19:16	1°♂20'34		direct		3968 Jul 30 22:27	21°♂20'38	
max. Earth dist.	3960 Oct 23 23:57	3°♂52'13	31.88837 AU	max. Earth dist.		3968 Nov 14 02:07	24°♂00'31	30.91440 AU
conjunction	3960 Oct 26 11:57	3°♂57'59	16°05'44	conjunction		3968 Nov 15 20:36	24°♂04'46	16°21'59
minimum elong	3960 Oct 26 11:43	3°♂57'58	16°05'44	minimum elong		3968 Nov 15 20:38	24°♂04'47	16°21'59
retrograde	3961 Feb 07 06:02	6°♂31'38		retrograde		3969 Feb 27 15:31	26°♂44'32	
opposition	3961 Apr 24 17:46	5°♂10'12	17°13'48	opposition		3969 May 15 03:06	25°♂21'19	17°25'54
min. Earth dist.	3961 Apr 27 00:31	5°♂06'24	29.89570 AU	min. Earth dist.		3969 May 16 17:26	25°♂18'36	28.96239 AU
direct	3961 Jul 13 10:20	3°♂45'45		direct		3969 Aug 02 18:55	23°♂55'10	
max. Earth dist.	3961 Oct 26 18:07	6°♂18'37	31.73576 AU	max. Earth dist.		3969 Nov 17 02:37	26°♂35'51	30.84033 AU
conjunction	3961 Oct 29 05:15	6°♂24'20	16°13'38	conjunction		3969 Nov 18 16:58	26°♂39'42	16°15'49
minimum elong	3961 Oct 29 05:04	6°♂24'19	16°13'38	minimum elong		3969 Nov 18 17:04	26°♂39'43	16°15'49
retrograde	3962 Feb 10 00:01	8°♂59'04		retrograde		3970 Mar 02 11:31	29°♂19'50	
opposition	3962 Apr 27 10:51	7°♂37'22	17°21'43	opposition		3970 May 18 00:19	27°♂56'33	17°18'29
min. Earth dist.	3962 Apr 29 15:46	7°♂33'41	29.74826 AU	min. Earth dist.		3970 May 19 11:31	27°♂54'04	28.89302 AU
direct	3962 Jul 16 02:40	6°♂12'38		direct		3970 Aug 05 17:00	26°♂30'23	
max. Earth dist.	3962 Oct 29 14:50	8°♂46'48	31.59086 AU	max. Earth dist.		3970 Nov 20 01:06	29°♂11'33	30.77826 AU
conjunction	3962 Oct 31 23:29	8°♂52'19	16°19'58	conjunction		3970 Nov 21 13:29	29°♂15'13	16°07'45
minimum elong	3962 Oct 31 23:18	8°♂52'18	16°19'58	minimum elong		3970 Nov 21 13:36	29°♂15'14	16°07'45
retrograde	3963 Feb 12 17:10	11°♂28'01				3970 Dec 10 07:49	0°♂	
opposition	3963 Apr 30 04:37	10°♂06'04	17°27'56	retrograde		3971 Mar 05 09:39	1°♂55'39	
min. Earth dist.	3963 May 02 08:42	10°♂02'25	29.60839 AU	opposition		3971 May 20 21:37	0°♂32'20	17°09'00
direct	3963 Jul 18 19:00	8°♂41'03		min. Earth dist.		3971 May 22 06:07	0°♂30'02	28.83534 AU
max. Earth dist.	3963 Nov 01 10:54	11°♂16'19	31.45417 AU			3971 Jun 09 10:00	30°♂♂	
				direct		3971 Aug 08 13:49	29°♂06'10	
conjunction	3963 Nov 03 18:07	11°♂21'44	16°24'41			3971 Oct 04 21:08	0°♂	
minimum elong	3963 Nov 03 18:00	11°♂21'43	16°24'42	max. Earth dist.		3971 Nov 23 02:07	1°♂47'59	30.72793 AU
retrograde	3964 Feb 15 12:41	13°♂58'20						
opposition	3964 May 01 23:02	12°♂36'07	17°32'24	conjunction		3971 Nov 24 10:17	1°♂51'14	15°57'46
min. Earth dist.	3964 May 04 00:31	12°♂32'39	29.47663 AU	minimum elong		3971 Nov 24 10:28	1°♂51'15	15°57'46
direct	3964 Jul 20 13:03	11°♂10'51		retrograde		3972 Mar 07 05:37	4°♂31'51	
max. Earth dist.	3964 Nov 03 08:16	13°♂47'12	31.32599 AU	opposition		3972 May 22 19:27	3°♂08'33	16°57'28
				min. Earth dist.		3972 May 24 01:36	3°♂06'25	28.78878 AU
conjunction	3964 Nov 05 13:12	13°♂52'25	16°27'44	direct		3972 Aug 10 11:49	1°♂42'27	
minimum elong	3964 Nov 05 13:06	13°♂52'25	16°27'44	max. Earth dist.		3972 Nov 25 00:39	4°♂24'32	30.68893 AU
	3964 Dec 05 00:25	15°♂						
retrograde	3965 Feb 17 06:28	16°♂29'50		conjunction		3972 Nov 26 06:50	4°♂27'35	15°45'54
opposition	3965 May 04 18:12	15°♂07'22	17°35'01	minimum elong		3972 Nov 26 07:01	4°♂27'36	15°45'54
min. Earth dist.	3965 May 06 18:43	15°♂03'58	29.35346 AU	retrograde		3973 Mar 10 02:59	7°♂08'19	
	3965 May 09 03:09	15°♂♂		opposition		3973 May 25 17:20	5°♂45'02	16°43'55
direct	3965 Jul 23 08:05	13°♂41'52		min. Earth dist.		3973 May 26 20:10	5°♂43'08	28.75318 AU

direct	3973 Aug 13 09:38	4°♂19'00		minimum elong	3981 Dec 19 15:14	27°♂38'44	12°42'01
max. Earth dist.	3973 Nov 28 01:24	7°♂01'28	30.66089 AU	max. Earth dist.	3981 Dec 19 12:50	27°♂38'29	30.82764 AU
					3982 Mar 03 06:10	0°♂	
conjunction	3973 Nov 29 03:37	7°♂04'06	15°32'11	retrograde	3982 Apr 02 05:05	0°♂15'44	
minimum elong	3973 Nov 29 03:52	7°♂04'08	15°32'12		3982 May 02 23:02	30°♂♂	
retrograde	3974 Mar 12 22:11	9°♂44'50		opposition	3982 Jun 18 17:28	28°♂53'18	13°19'47
opposition	3974 May 28 15:20	8°♂21'36	16°28'24	min. Earth dist.	3982 Jun 18 17:43	28°♂53'17	28.91300 AU
min. Earth dist.	3974 May 29 16:17	8°♂19'50	28.72807 AU	direct	3982 Sep 06 15:13	27°♂28'42	
direct	3974 Aug 16 07:16	6°♂55'39			3982 Dec 18 18:33	0°♂	
max. Earth dist.	3974 Nov 30 23:57	9°♂38'10	30.64365 AU				
				conjunction	3982 Dec 22 08:16	0°♂08'28	12°14'06
conjunction	3974 Dec 02 00:10	9°♂40'36	15°16'41	minimum elong	3982 Dec 22 08:39	0°♂08'30	12°14'07
minimum elong	3974 Dec 02 00:25	9°♂40'38	15°16'41	max. Earth dist.	3982 Dec 22 10:36	0°♂08'42	30.90092 AU
retrograde	3975 Mar 15 19:54	12°♂21'13		retrograde	3983 Apr 04 21:49	2°♂44'42	
opposition	3975 May 31 13:16	10°♂58'03	16°10'57	opposition	3983 Jun 21 13:11	1°♂22'29	12°49'12
min. Earth dist.	3975 Jun 01 10:32	10°♂56'33	28.71336 AU	min. Earth dist.	3983 Jun 21 10:37	1°♂22'40	28.98821 AU
direct	3975 Aug 19 05:04	9°♂32'12			3983 Aug 30 02:04	30°♂♂	
				direct	3983 Sep 09 13:32	29°♂58'12	
conjunction	3975 Dec 04 20:38	12°♂16'53	14°59'25		3983 Sep 19 21:38	0°♂	
minimum elong	3975 Dec 04 20:56	12°♂16'55	14°59'25				
max. Earth dist.	3975 Dec 03 23:57	12°♂14'47	30.63683 AU	conjunction	3983 Dec 25 00:52	2°♂36'58	11°45'00
retrograde	3976 Mar 17 13:43	14°♂57'16		minimum elong	3983 Dec 25 01:16	2°♂37'00	11°44'59
opposition	3976 Jun 02 11:19	13°♂34'10	15°51'38	max. Earth dist.	3983 Dec 25 05:26	2°♂37'25	30.98574 AU
min. Earth dist.	3976 Jun 03 06:53	13°♂32'47	28.70888 AU	retrograde	3984 Apr 06 14:53	5°♂12'22	
direct	3976 Aug 21 03:06	12°♂08'26		opposition	3984 Jun 23 08:20	3°♂50'24	12°17'23
				min. Earth dist.	3984 Jun 23 01:54	3°♂50'50	29.07476 AU
conjunction	3976 Dec 06 16:45	14°♂52'43	14°40'27	direct	3984 Sep 11 09:05	2°♂26'26	
minimum elong	3976 Dec 06 17:04	14°♂52'45	14°40'27				
max. Earth dist.	3976 Dec 05 22:38	14°♂50'53	30.64069 AU	conjunction	3984 Dec 26 17:07	5°♂04'09	11°14'48
retrograde	3977 Mar 20 09:40	17°♂32'46		minimum elong	3984 Dec 26 17:31	5°♂04'11	11°14'49
opposition	3977 Jun 05 09:06	16°♂09'43	15°30'30	max. Earth dist.	3984 Dec 27 01:51	5°♂05'00	31.08146 AU
min. Earth dist.	3977 Jun 06 00:49	16°♂08'37	28.71484 AU	retrograde	3985 Apr 09 05:43	7°♂38'39	
direct	3977 Aug 24 02:22	14°♂44'08		opposition	3985 Jun 26 03:04	6°♂16'57	11°44'29
				min. Earth dist.	3985 Jun 25 18:35	6°♂17'31	29.17186 AU
conjunction	3977 Dec 09 12:29	17°♂27'53	14°19'49	direct	3985 Sep 14 05:14	4°♂53'21	
minimum elong	3977 Dec 09 12:50	17°♂27'55	14°19'49				
max. Earth dist.	3977 Dec 08 21:36	17°♂26'23	30.65515 AU	conjunction	3985 Dec 29 08:34	7°♂29'56	10°43'38
retrograde	3978 Mar 23 04:01	20°♂07'31		minimum elong	3985 Dec 29 08:57	7°♂29'58	10°43'38
opposition	3978 Jun 08 06:43	18°♂44'32	15°07'36	max. Earth dist.	3985 Dec 29 19:12	7°♂30'58	31.18740 AU
min. Earth dist.	3978 Jun 08 20:30	18°♂43'35	28.73143 AU	retrograde	3986 Apr 11 22:17	10°♂03'28	
direct	3978 Aug 26 22:50	17°♂19'05		opposition	3986 Jun 28 21:06	8°♂42'03	11°10'34
				min. Earth dist.	3986 Jun 28 08:48	8°♂42'53	29.27883 AU
conjunction	3978 Dec 12 07:51	20°♂02'12	13°57'36	direct	3986 Sep 17 00:34	7°♂18'48	
minimum elong	3978 Dec 12 08:12	20°♂02'14	13°57'36				
max. Earth dist.	3978 Dec 11 20:17	20°♂01'02	30.68069 AU	conjunction	3986 Dec 31 23:36	9°♂54'14	10°11'37
retrograde	3979 Mar 25 22:34	22°♂41'17		minimum elong	3986 Dec 31 23:59	9°♂54'17	10°11'37
opposition	3979 Jun 11 03:50	21°♂18'25	14°43'00	max. Earth dist.	3987 Jan 01 13:45	9°♂55'36	31.30264 AU
min. Earth dist.	3979 Jun 11 13:49	21°♂17'43	28.75900 AU	retrograde	3987 Apr 14 10:52	12°♂26'47	
direct	3979 Aug 29 22:56	19°♂53'07		opposition	3987 Jul 01 14:41	11°♂05'38	10°35'48
				min. Earth dist.	3987 Jul 01 00:49	11°♂06'34	29.39493 AU
conjunction	3979 Dec 15 02:44	22°♂35'31	13°33'51	direct	3987 Sep 19 18:28	9°♂42'46	
minimum elong	3979 Dec 15 03:06	22°♂35'33	13°33'50				
max. Earth dist.	3979 Dec 14 18:04	22°♂34'39	30.71757 AU	conjunction	3988 Jan 03 13:56	12°♂16'58	9°38'49
retrograde	3980 Mar 27 17:12	25°♂13'59		minimum elong	3988 Jan 03 14:18	12°♂17'01	9°38'49
opposition	3980 Jun 13 00:53	23°♂51'13	14°16'47	max. Earth dist.	3988 Jan 04 06:09	12°♂18'32	31.42675 AU
min. Earth dist.	3980 Jun 13 08:05	23°♂50'43	28.79828 AU	retrograde	3988 Apr 16 00:09	14°♂48'28	
direct	3980 Aug 31 20:17	22°♂26'07		opposition	3988 Jul 03 07:36	13°♂27'37	10°00'17
				min. Earth dist.	3988 Jul 02 14:08	13°♂28'47	29.51965 AU
conjunction	3980 Dec 16 21:02	25°♂07'42	13°08'37	direct	3988 Sep 21 12:58	12°♂05'06	
minimum elong	3980 Dec 16 21:25	25°♂07'44	13°08'38				
max. Earth dist.	3980 Dec 16 16:28	25°♂07'14	30.76651 AU	conjunction	3989 Jan 05 03:31	14°♂38'03	9°05'22
retrograde	3981 Mar 30 10:24	27°♂45'29		minimum elong	3989 Jan 05 03:52	14°♂38'05	9°05'23
opposition	3981 Jun 15 21:29	26°♂22'52	13°49'00	max. Earth dist.	3989 Jan 05 22:34	14°♂39'52	31.55902 AU
min. Earth dist.	3981 Jun 16 01:06	26°♂22'37	28.84951 AU	retrograde	3989 Apr 18 12:27	17°♂08'28	
direct	3981 Sep 03 18:42	24°♂57'59		opposition	3989 Jul 06 00:00	15°♂47'53	9°24'07
				min. Earth dist.	3989 Jul 05 04:44	15°♂49'10	29.65261 AU
conjunction	3981 Dec 19 14:50	27°♂38'41	12°42'01	direct	3989 Sep 24 04:23	14°♂25'43	

conjunction	3990 Jan 07 16:31	16°☾57'23	8°31'22	direct	3997 Oct 12 23:16	2°☾05'16	
minimum elong	3990 Jan 07 16:51	16°☾57'25	8°31'22				
max. Earth dist.	3990 Jan 08 14:02	16°☾59'25	31.69929 AU	conjunction	3998 Jan 24 20:10	4°☾26'14	3°49'07
retrograde	3990 Apr 21 00:00	19°☾26'40		minimum elong	3998 Jan 24 20:20	4°☾26'15	3°49'07
opposition	3990 Jul 08 15:20	18°☾06'22	8°47'25	max. Earth dist.	3998 Jan 26 13:24	4°☾29'55	33.11022 AU
min. Earth dist.	3990 Jul 07 17:08	18°☾07'51	29.79341 AU	retrograde	3998 May 07 23:13	6°☾46'19	
direct	3990 Sep 26 21:59	16°☾44'33		min. Earth dist.	3998 Jul 24 23:28	5°☾31'12	31.21675 AU
				opposition	3998 Jul 26 17:16	5°☾28'33	3°45'01
conjunction	3991 Jan 10 04:39	19°☾14'53	7°56'53	direct	3998 Oct 15 08:13	4°☾09'58	
minimum elong	3991 Jan 10 04:58	19°☾14'55	7°56'54				
max. Earth dist.	3991 Jan 11 04:09	19°☾17'06	31.84722 AU	conjunction	3999 Jan 27 02:34	6°☾29'37	3°13'44
retrograde	3991 Apr 23 12:03	21°☾43'02		minimum elong	3999 Jan 27 02:41	6°☾29'38	3°13'45
min. Earth dist.	3991 Jul 10 05:40	20°☾24'37	29.94232 AU	max. Earth dist.	3999 Jan 28 21:44	6°☾33'27	33.31913 AU
opposition	3991 Jul 11 06:13	20°☾23'00	8°10'16	retrograde	3999 May 10 04:13	8°☾48'33	
direct	3991 Sep 29 12:58	19°☾01'32		min. Earth dist.	3999 Jul 27 06:18	7°☾33'56	31.42684 AU
				opposition	3999 Jul 29 02:19	7°☾31'09	3°07'23
conjunction	3992 Jan 12 16:00	21°☾30'30	7°22'01	direct	3999 Oct 17 18:55	6°☾13'00	
minimum elong	3992 Jan 12 16:17	21°☾30'32	7°22'01				
max. Earth dist.	3992 Jan 13 18:48	21°☾33'01	32.00316 AU	conjunction	4000 Jan 29 08:05	8°☾31'20	2°38'34
retrograde	3992 Apr 24 22:12	23°☾57'30		minimum elong	4000 Jan 29 08:11	8°☾31'21	2°38'34
opposition	3992 Jul 12 20:20	22°☾37'43	7°32'45	max. Earth dist.	4000 Jan 31 04:32	8°☾35'15	33.53282 AU
min. Earth dist.	3992 Jul 11 17:23	22°☾39'29	30.09940 AU	retrograde	4000 May 11 10:26	10°☾49'09	
direct	3992 Oct 01 05:13	21°☾16'37		min. Earth dist.	4000 Jul 28 12:55	9°☾34'57	31.64184 AU
				opposition	4000 Jul 30 10:48	9°☾32'05	2°30'03
conjunction	3993 Jan 14 02:27	23°☾44'14	6°46'51	direct	4000 Oct 19 02:07	8°☾14'21	
minimum elong	3993 Jan 14 02:43	23°☾44'16	6°46'52				
max. Earth dist.	3993 Jan 15 07:02	23°☾46'53	32.16731 AU	conjunction	4001 Jan 30 13:14	10°☾31'23	2°03'40
retrograde	3993 Apr 27 09:12	26°☾10'04		minimum elong	4001 Jan 30 13:19	10°☾31'24	2°03'41
min. Earth dist.	3993 Jul 14 03:19	24°☾52'32	30.26528 AU	max. Earth dist.	4001 Feb 01 12:02	10°☾35'29	33.75083 AU
opposition	3993 Jul 15 09:35	24°☾50'34	6°54'58	retrograde	4001 May 13 14:39	12°☾48'04	
direct	3993 Oct 03 18:20	23°☾29'50		min. Earth dist.	4001 Jul 30 19:28	11°☾34'15	31.86087 AU
				opposition	4001 Aug 01 18:25	11°☾31'19	1°53'02
conjunction	3994 Jan 16 12:17	25°☾56'06	6°11'27	direct	4001 Oct 21 10:29	10°☾13'58	
minimum elong	3994 Jan 16 12:32	25°☾56'08	6°11'26				
max. Earth dist.	3994 Jan 17 20:34	25°☾59'05	32.34006 AU	conjunction	4002 Feb 01 17:33	12°☾29'43	1°29'05
retrograde	3994 Apr 29 18:08	28°☾20'46		minimum elong	4002 Feb 01 17:36	12°☾29'44	1°29'04
opposition	3994 Jul 17 22:13	27°☾01'35	6°17'00	max. Earth dist.	4002 Feb 03 16:49	12°☾33'49	33.97242 AU
min. Earth dist.	3994 Jul 16 14:02	27°☾03'40	30.43979 AU	retrograde	4002 May 15 20:00	14°☾45'16	
direct	3994 Oct 06 09:56	25°☾41'15		min. Earth dist.	4002 Aug 02 00:00	13°☾31'52	32.08362 AU
				opposition	4002 Aug 04 01:21	13°☾28'49	1°16'25
conjunction	3995 Jan 18 21:15	28°☾06'11	5°35'53	direct	4002 Oct 23 17:18	12°☾11'51	
minimum elong	3995 Jan 18 21:29	28°☾06'13	5°35'54				
max. Earth dist.	3995 Jan 20 07:00	28°☾09'16	32.52124 AU	conjunction	4003 Feb 03 21:16	14°☾26'18	0°54'51
	3995 Mar 19 18:54	0°☾		minimum elong	4003 Feb 03 21:18	14°☾26'18	0°54'51
retrograde	3995 May 02 04:34	0°☾29'41		max. Earth dist.	4003 Feb 05 23:02	14°☾30'34	34.19733 AU
	3995 Jun 16 05:03	30°☾☾			4003 Feb 20 09:31	15°☾	
min. Earth dist.	3995 Jul 18 22:09	29°☾13'09	30.62284 AU	retrograde	4003 May 17 22:48	16°☾40'42	
opposition	3995 Jul 20 09:57	29°☾10'50	5°38'57	min. Earth dist.	4003 Aug 04 05:47	15°☾27'37	32.30982 AU
direct	3995 Oct 08 23:10	27°☾50'56		opposition	4003 Aug 06 07:40	15°☾24'33	0°40'13
	3996 Jan 14 13:15	0°☾			4003 Aug 23 04:54	15°☾☾	
conjunction	3996 Jan 21 05:39	0°☾14'32	5°00'16	direct	4003 Oct 26 02:23	14°☾07'56	
minimum elong	3996 Jan 21 05:51	0°☾14'34	5°00'16		4003 Dec 25 08:55	15°☾	
max. Earth dist.	3996 Jan 22 18:45	0°☾17'54	32.71045 AU	conjunction	4004 Feb 06 00:12	16°☾21'06	0°21'01
retrograde	3996 May 03 10:45	2°☾36'53		minimum elong	4004 Feb 06 00:13	16°☾21'06	0°21'01
min. Earth dist.	3996 Jul 20 08:00	1°☾20'47	30.81388 AU	max. Earth dist.	4004 Feb 08 02:31	16°☾25'23	34.42571 AU
opposition	3996 Jul 21 21:14	1°☾18'24	5°00'52	retrograde	4004 May 19 02:32	18°☾34'21	
	3996 Oct 02 02:33	30°☾☾		min. Earth dist.	4004 Aug 05 08:39	17°☾21'42	32.53987 AU
direct	3996 Oct 10 11:16	29°☾58'56		opposition	4004 Aug 07 13:10	17°☾18'29	0°04'30
	3996 Oct 18 15:48	0°☾		desc. node	4004 Sep 23 05:22	16°☾18'38	
				direct	4004 Oct 27 09:38	16°☾02'13	
conjunction	3997 Jan 22 13:11	2°☾21'13	4°24'39				
minimum elong	3997 Jan 22 13:21	2°☾21'14	4°24'40	conjunction	4005 Feb 07 02:25	18°☾14'07	0°-12'-25
max. Earth dist.	3997 Jan 24 03:57	2°☾24'43	32.90712 AU	minimum elong	4005 Feb 07 02:24	18°☾14'07	0°12'26
retrograde	3997 May 05 17:14	4°☾42'25		behind sun begin	4005 Feb 06 22:10	18°☾13'46	
min. Earth dist.	3997 Jul 22 15:11	3°☾26'53	31.01210 AU	behind sun end	4005 Feb 07 06:39	18°☾14'27	
opposition	3997 Jul 24 07:36	3°☾24'18	4°22'52	max. Earth dist.	4005 Feb 09 07:04	18°☾18'33	34.65779 AU

retrograde	4005 May 21 02:38	20° 26 '15		retrograde	4013 Jun 03 20:37	4° 28 '34	
min. Earth dist.	4005 Aug 07 12:48	19° 13 '55	32.77414 AU	min. Earth dist.	4013 Aug 21 18:06	3° 19 '24	34.77761 AU
opposition	4005 Aug 09 18:06	19° 10 '40	0°-30'-41	opposition	4013 Aug 24 10:16	3° 15 '40	-4°-50'-46
direct	4005 Oct 29 15:40	17° 54 '46		direct	4013 Nov 13 12:40	2° 02 '56	
conjunction	4006 Feb 09 04:05	20° 05 '25	0°-45'-20	conjunction	4014 Feb 22 20:52	4° 04 '49	-4°-49'00
minimum elong	4006 Feb 09 04:03	20° 05 '24	0°45'21	minimum elong	4014 Feb 22 20:43	4° 04 '48	4°49'02
max. Earth dist.	4006 Feb 11 10:06	20° 09 '56	34.89410 AU	max. Earth dist.	4014 Feb 25 11:59	4° 09 '49	36.90010 AU
retrograde	4006 May 23 01:56	22° 16 '27		retrograde	4014 Jun 05 18:07	6° 08 '11	
min. Earth dist.	4006 Aug 09 14:26	21° 04 '33	33.01277 AU	min. Earth dist.	4014 Aug 23 17:05	4° 59 '19	35.03502 AU
opposition	4006 Aug 11 22:01	21° 01 '10	-1°-5'-22	opposition	4014 Aug 26 09:46	4° 55 '34	-5°-20'-19
direct	4006 Oct 31 21:49	19° 45 '38		direct	4014 Nov 15 11:43	3° 43 '11	
conjunction	4007 Feb 11 05:04	21° 55 '05	-1°-17'-46	conjunction	4015 Feb 24 17:54	5° 44 '03	-5°-16'-46
minimum elong	4007 Feb 11 05:01	21° 55 '05	1°17'46	minimum elong	4015 Feb 24 17:44	5° 44 '03	5°16'46
max. Earth dist.	4007 Feb 13 12:33	21° 59 '42	35.13463 AU	max. Earth dist.	4015 Feb 27 10:12	5° 49 '06	37.15587 AU
retrograde	4007 May 25 02:49	24° 05 '05		retrograde	4015 Jun 07 13:45	7° 46 '31	
min. Earth dist.	4007 Aug 11 16:22	22° 53 '34	33.25598 AU	min. Earth dist.	4015 Aug 25 15:52	6° 37 '56	35.29210 AU
opposition	4007 Aug 14 01:36	22° 50 '07	-1°-39'-27	opposition	4015 Aug 28 08:48	6° 34 '11	-5°-49'-12
direct	4007 Nov 03 00:16	21° 34 '59		direct	4015 Nov 17 11:58	5° 22 '09	
conjunction	4008 Feb 13 05:26	23° 43 '15	-1°-49'-41	conjunction	4016 Feb 26 14:05	7° 22 '00	-5°-43'-54
minimum elong	4008 Feb 13 05:22	23° 43 '15	1°49'42	minimum elong	4016 Feb 26 13:55	7° 21 '59	5°43'55
max. Earth dist.	4008 Feb 15 15:04	23° 48 '01	35.37944 AU	max. Earth dist.	4016 Feb 29 06:04	7° 26 '59	37.41131 AU
retrograde	4008 May 26 02:04	25° 52 '14		retrograde	4016 Jun 08 12:29	9° 23 '33	
min. Earth dist.	4008 Aug 12 18:01	24° 41 '07	33.50321 AU	min. Earth dist.	4016 Aug 26 12:56	8° 15 '18	35.54925 AU
opposition	4008 Aug 15 04:30	24° 37 '37	-2°-12'-57	opposition	4016 Aug 29 07:16	8° 11 '29	-6°-17'-23
direct	4008 Nov 04 04:14	23° 22 '52		direct	4016 Nov 18 08:13	6° 59 '45	
conjunction	4009 Feb 14 05:12	25° 30 '01	-2°-21'-2	conjunction	4017 Feb 27 10:01	8° 58 '37	-6°-10'-24
minimum elong	4009 Feb 14 05:08	25° 30 '00	2°21'02	minimum elong	4017 Feb 27 09:51	8° 58 '36	6°10'24
max. Earth dist.	4009 Feb 16 15:23	25° 34 '47	35.62786 AU	max. Earth dist.	4017 Mar 02 03:47	9° 03 '42	37.66684 AU
retrograde	4009 May 28 04:02	27° 38 '01		retrograde	4017 Jun 10 08:25	10° 59 '17	
min. Earth dist.	4009 Aug 14 18:05	26° 27 '20	33.75409 AU	min. Earth dist.	4017 Aug 28 11:06	9° 51 '14	35.80677 AU
opposition	4009 Aug 17 06:39	26° 23 '44	-2°-45'-49	opposition	4017 Aug 31 05:04	9° 47 '28	-6°-44'-53
direct	4009 Nov 06 04:53	25° 09 '24		direct	4017 Nov 20 05:47	8° 36 '03	
conjunction	4010 Feb 16 04:35	27° 15 '27	-2°-51'-50	conjunction	4018 Mar 01 05:21	10° 33 '56	-6°-36'-15
minimum elong	4010 Feb 16 04:29	27° 15 '27	2°51'51	minimum elong	4018 Mar 01 05:09	10° 33 '56	6°36'16
max. Earth dist.	4010 Feb 18 17:06	27° 20 '23	35.87933 AU	max. Earth dist.	4018 Mar 03 23:00	10° 38 '59	37.92299 AU
retrograde	4010 May 30 03:51	29° 22 '30		retrograde	4018 Jun 12 03:38	12° 33 '44	
min. Earth dist.	4010 Aug 16 19:34	28° 12 '10	34.00767 AU	min. Earth dist.	4018 Aug 30 06:27	11° 26 '02	36.06514 AU
opposition	4010 Aug 19 08:23	28° 08 '33	-3°-18'-3	opposition	4018 Sep 02 02:21	11° 22 '11	-7°-11'-40
direct	4010 Nov 08 07:01	26° 54 '39		direct	4018 Nov 22 04:06	10° 11 '04	
conjunction	4011 Feb 18 03:15	28° 59 '38	-3°-22'-2	conjunction	4019 Mar 03 00:07	12° 08 '01	-7°-1'-27
minimum elong	4011 Feb 18 03:09	28° 59 '37	3°22'02	minimum elong	4019 Mar 02 23:56	12° 08 '00	7°01'28
max. Earth dist.	4011 Feb 20 15:56	29° 04 '32	36.13302 AU	max. Earth dist.	4019 Mar 05 19:14	12° 13 '08	38.17996 AU
retrograde	4011 Mar 22 14:54	0° 05 '44		retrograde	4019 Jun 13 21:25	14° 06 '58	
min. Earth dist.	4011 Jun 01 03:47	1° 05 '44		min. Earth dist.	4019 Sep 01 03:21	12° 59 '32	36.32462 AU
opposition	4011 Aug 15 20:00	30° 05 '44		opposition	4019 Sep 03 23:21	12° 55 '41	-7°-37'-45
direct	4011 Aug 18 18:31	29° 55 '51	34.26328 AU	direct	4019 Nov 24 02:40	11° 44 '53	
conjunction	4012 Feb 20 01:37	0° 42 '35	-3°-51'-38	conjunction	4020 Mar 03 18:38	13° 40 '56	-7°-26'00
minimum elong	4012 Feb 20 01:29	0° 42 '34	3°51'39	minimum elong	4020 Mar 03 18:25	13° 40 '55	7°26'01
max. Earth dist.	4012 Feb 22 15:55	0° 47 '34	36.38816 AU	max. Earth dist.	4020 Mar 06 14:24	13° 46 '04	38.43809 AU
retrograde	4012 Jun 02 00:31	2° 47 '46		retrograde	4020 Jun 14 13:50	15° 39 '04	
min. Earth dist.	4012 Aug 19 19:20	1° 38 '12	34.52023 AU	min. Earth dist.	4020 Sep 01 22:30	14° 31 '58	36.58503 AU
opposition	4012 Aug 22 10:14	1° 34 '31	-4°-20'-32	opposition	4020 Sep 04 19:38	14° 28 '04	-8°-3'-7
direct	4012 Nov 11 10:24	0° 21 '24		direct	4020 Nov 25 01:08	13° 17 '36	
conjunction	4013 Feb 20 23:28	2° 24 '19	-4°-20'-38	conjunction	4021 Mar 05 12:33	15° 12 '46	-7°-49'-54
minimum elong	4013 Feb 20 23:20	2° 24 '18	4°20'38	minimum elong	4021 Mar 05 12:22	15° 12 '45	7°49'55
max. Earth dist.	4013 Feb 23 14:12	2° 29 '19	36.64416 AU	max. Earth dist.	4021 Mar 08 08:37	15° 17 '53	38.69689 AU
				retrograde	4021 Jun 16 08:09	17° 10 '07	
				min. Earth dist.	4021 Sep 03 17:43	16° 03 '19	36.84611 AU
				opposition	4021 Sep 06 15:37	15° 59 '23	-8°-27'-47

direct	4021 Nov 26 20:33	14° ✕ 49'15		minimum elong	4030 Mar 18 14:40	28° ✕ 16'10	10°57'01
				max. Earth dist.	4030 Mar 21 12:12	28° ✕ 21'06	40.97331 AU
conjunction	4022 Mar 07 06:17	16° ✕ 43'34	-8°-13'-9		4030 Jun 05 14:06	0° Υ	
minimum elong	4022 Mar 07 06:04	16° ✕ 43'33	8°13'10	retrograde	4030 Jun 29 12:56	0° Υ 07'08	
max. Earth dist.	4022 Mar 10 03:47	16° ✕ 48'45	38.95602 AU		4030 Jul 23 15:15	30° ℞ ✕	
retrograde	4022 Jun 18 01:08	18° ✕ 40'09		min. Earth dist.	4030 Sep 17 09:14	29° ✕ 02'31	39.13374 AU
min. Earth dist.	4022 Sep 05 13:11	17° ✕ 33'37	37.10711 AU	opposition	4030 Sep 20 08:17	28° ✕ 58'41	-11°-39'-55
opposition	4022 Sep 08 10:59	17° ✕ 29'43	-8°-51'-45	direct	4030 Dec 10 12:20	27° ✕ 51'08	
direct	4022 Nov 28 16:36	16° ✕ 19'55					
				conjunction	4031 Mar 20 05:19	29° ✕ 38'32	-11°-14'-48
conjunction	4023 Mar 08 23:30	18° ✕ 13'23	-8°-35'-46	minimum elong	4031 Mar 20 05:06	29° ✕ 38'31	11°14'50
minimum elong	4023 Mar 08 23:18	18° ✕ 13'23	8°35'47	max. Earth dist.	4031 Mar 23 03:31	29° ✕ 43'29	41.21654 AU
max. Earth dist.	4023 Mar 11 20:24	18° ✕ 18'31	39.21484 AU		4031 Apr 01 22:52	0° Υ	
retrograde	4023 Jun 19 21:03	20° ✕ 09'15		retrograde	4031 Jul 01 02:13	1° Υ 28'51	
min. Earth dist.	4023 Sep 07 06:59	19° ✕ 03'03	37.36765 AU	min. Earth dist.	4031 Sep 19 01:57	0° Υ 24'23	39.37870 AU
opposition	4023 Sep 10 06:05	18° ✕ 59'06	-9°-15'-3	opposition	4031 Sep 22 00:17	0° Υ 20'37	-11°-58'-5
direct	4023 Nov 30 09:13	17° ✕ 49'37			4031 Oct 08 05:43	30° ℞ ✕	
				direct	4031 Dec 12 05:13	29° ✕ 13'20	
conjunction	4024 Mar 09 16:25	19° ✕ 42'18	-8°-57'-45		4032 Feb 12 01:03	0° Υ	
minimum elong	4024 Mar 09 16:12	19° ✕ 42'17	8°57'46				
max. Earth dist.	4024 Mar 12 14:33	19° ✕ 47'28	39.47270 AU	conjunction	4032 Mar 20 19:24	1° Υ 00'02	-11°-32'-1
retrograde	4024 Jun 20 14:17	21° ✕ 37'26		minimum elong	4032 Mar 20 19:12	1° Υ 00'01	11°32'01
min. Earth dist.	4024 Sep 08 02:44	20° ✕ 31'26	37.62691 AU	max. Earth dist.	4032 Mar 23 17:48	1° Υ 04'59	41.45899 AU
opposition	4024 Sep 11 00:51	20° ✕ 27'34	-9°-37'-40	retrograde	4032 Jul 01 13:50	2° Υ 49'43	
direct	4024 Dec 01 03:48	19° ✕ 18'24		min. Earth dist.	4032 Sep 19 16:37	1° Υ 45'32	39.62268 AU
				opposition	4032 Sep 22 15:44	1° Υ 41'43	-12°-15'-37
conjunction	4025 Mar 11 09:06	21° ✕ 10'17	-9°-19'-7	direct	4032 Dec 12 22:53	0° Υ 34'42	
minimum elong	4025 Mar 11 08:54	21° ✕ 10'16	9°19'08				
max. Earth dist.	4025 Mar 14 06:41	21° ✕ 15'23	39.72897 AU	conjunction	4033 Mar 22 09:11	2° Υ 20'45	-11°-48'-38
retrograde	4025 Jun 22 06:25	23° ✕ 04'42		minimum elong	4033 Mar 22 08:59	2° Υ 20'44	11°48'39
min. Earth dist.	4025 Sep 09 19:57	21° ✕ 59'00	37.88418 AU	max. Earth dist.	4033 Mar 25 07:21	2° Υ 25'40	41.70039 AU
opposition	4025 Sep 12 18:54	21° ✕ 55'06	-9°-59'-37	retrograde	4033 Jul 03 03:41	4° Υ 09'51	
direct	4025 Dec 02 23:04	20° ✕ 46'15		min. Earth dist.	4033 Sep 21 07:34	3° Υ 05'53	39.86570 AU
				opposition	4033 Sep 24 06:47	3° Υ 02'05	-12°-32'-33
conjunction	4026 Mar 13 01:25	22° ✕ 37'22	-9°-39'-53	direct	4033 Dec 14 14:20	1° Υ 55'20	
minimum elong	4026 Mar 13 01:12	22° ✕ 37'21	9°39'53				
max. Earth dist.	4026 Mar 15 23:04	22° ✕ 42'26	39.98284 AU	conjunction	4034 Mar 23 22:48	3° Υ 40'45	-12°-4'-41
retrograde	4026 Jun 23 22:08	24° ✕ 31'04		minimum elong	4034 Mar 23 22:36	3° Υ 40'44	12°04'42
min. Earth dist.	4026 Sep 11 14:32	23° ✕ 25'35	38.13899 AU	max. Earth dist.	4034 Mar 26 21:54	3° Υ 45'42	41.94069 AU
opposition	4026 Sep 14 12:55	23° ✕ 21'44	-10°-20'-57	retrograde	4034 Jul 04 16:08	5° Υ 29'16	
direct	4026 Dec 04 17:47	22° ✕ 13'10		min. Earth dist.	4034 Sep 22 22:53	4° Υ 25'31	40.10720 AU
				opposition	4034 Sep 25 21:37	4° Υ 21'45	-12°-48'-52
conjunction	4027 Mar 14 17:23	24° ✕ 03'31	-10°00'-2	direct	4034 Dec 16 06:31	3° Υ 15'17	
minimum elong	4027 Mar 14 17:10	24° ✕ 03'30	10°00'04				
max. Earth dist.	4027 Mar 17 15:17	24° ✕ 08'35	40.23411 AU	conjunction	4035 Mar 25 11:51	5° Υ 00'04	-12°-20'-10
retrograde	4027 Jun 25 12:05	25° ✕ 56'31		minimum elong	4035 Mar 25 11:39	5° Υ 00'03	12°20'12
min. Earth dist.	4027 Sep 13 08:10	24° ✕ 51'16	38.39091 AU	max. Earth dist.	4035 Mar 28 09:58	5° Υ 04'55	42.17937 AU
opposition	4027 Sep 16 06:25	24° ✕ 47'25	-10°-41'-38	retrograde	4035 Jul 06 08:13	6° Υ 48'02	
direct	4027 Dec 06 13:24	23° ✕ 39'08		min. Earth dist.	4035 Sep 24 12:39	5° Υ 44'33	40.34694 AU
				opposition	4035 Sep 27 12:10	5° Υ 40'46	-13°-4'-36
conjunction	4028 Mar 15 08:54	25° ✕ 28'42	-10°-19'-37	direct	4035 Dec 17 18:44	4° Υ 34'33	
minimum elong	4028 Mar 15 08:41	25° ✕ 28'41	10°19'37				
max. Earth dist.	4028 Mar 18 05:54	25° ✕ 33'40	40.48262 AU	conjunction	4036 Mar 26 00:55	6° Υ 18'45	-12°-35'-7
retrograde	4028 Jun 26 04:37	27° ✕ 21'01		minimum elong	4036 Mar 26 00:44	6° Υ 18'44	12°35'08
min. Earth dist.	4028 Sep 14 00:50	26° ✕ 15'59	38.64043 AU	max. Earth dist.	4036 Mar 28 23:54	6° Υ 23'38	42.41591 AU
opposition	4028 Sep 16 23:30	26° ✕ 12'08	-11°-1'-41	retrograde	4036 Jul 06 23:40	8° Υ 06'09	
direct	4028 Dec 07 05:45	25° ✕ 04'06		min. Earth dist.	4036 Sep 25 04:14	7° Υ 02'49	40.58422 AU
				opposition	4036 Sep 28 02:25	6° Υ 59'07	-13°-19'-46
conjunction	4029 Mar 17 00:09	26° ✕ 52'55	-10°-38'-36	direct	4036 Dec 18 06:57	5° Υ 53'11	
minimum elong	4029 Mar 16 23:56	26° ✕ 52'54	10°38'38				
max. Earth dist.	4029 Mar 19 22:18	26° ✕ 57'56	40.72885 AU	conjunction	4037 Mar 27 13:45	7° Υ 36'47	-12°-49'-32
retrograde	4029 Jun 27 20:21	28° ✕ 44'33		minimum elong	4037 Mar 27 13:33	7° Υ 36'46	12°49'33
min. Earth dist.	4029 Sep 15 18:22	27° ✕ 39'40	38.88781 AU	max. Earth dist.	4037 Mar 30 11:53	7° Υ 41'35	42.64979 AU
opposition	4029 Sep 18 16:10	27° ✕ 35'53	-11°-21'-7	retrograde	4037 Jul 08 12:01	9° Υ 23'38	
direct	4029 Dec 08 22:05	26° ✕ 28'06		min. Earth dist.	4037 Sep 26 17:36	8° Υ 20'32	40.81836 AU
				opposition	4037 Sep 29 16:15	8° Υ 16'50	-13°-34'-23
conjunction	4030 Mar 18 14:52	28° ✕ 16'11	-10°-57'00	direct	4037 Dec 19 20:33	7° Υ 11'08	

conjunction	4038 Mar 29 02:16	8°♈54'09	-13°-3'-26	retrograde	4046 Jul 19 15:02	20°♈29'13	
minimum elong	4038 Mar 29 02:06	8°♈54'09	13°03'27	min. Earth dist.	4046 Oct 08 13:37	19°♈27'28	42.78258 AU
max. Earth dist.	4038 Mar 31 23:49	8°♈58'53	42.88015 AU	opposition	4046 Oct 11 08:14	19°♈24'04	-15°-22'-41
retrograde	4038 Jul 09 23:07	10°♈40'28		direct	4046 Dec 31 18:24	18°♈20'12	
min. Earth dist.	4038 Sep 28 08:21	9°♈37'30	41.04889 AU				
opposition	4038 Oct 01 05:57	9°♈33'52	-13°-48'-28	conjunction	4047 Apr 09 07:35	19°♈58'21	-14°-46'-32
direct	4038 Dec 21 11:43	8°♈28'24		minimum elong	4047 Apr 09 07:28	19°♈58'21	14°46'33
				max. Earth dist.	4047 Apr 12 02:31	20°♈02'43	44.81700 AU
conjunction	4039 Mar 30 14:44	10°♈10'50	-13°-16'-51	retrograde	4047 Jul 21 03:38	21°♈40'08	
minimum elong	4039 Mar 30 14:33	10°♈10'49	13°16'52	min. Earth dist.	4047 Oct 10 00:03	20°♈38'37	42.98900 AU
max. Earth dist.	4039 Apr 02 12:21	10°♈15'33	43.10686 AU	opposition	4047 Oct 12 19:21	20°♈35'12	-15°-32'-12
retrograde	4039 Jul 11 08:28	11°♈56'35		direct	4048 Jan 02 03:24	19°♈31'33	
min. Earth dist.	4039 Sep 29 22:20	10°♈53'47	41.27543 AU				
opposition	4039 Oct 02 19:18	10°♈50'11	-14°-2'-2	conjunction	4048 Apr 09 17:41	21°♈09'16	-14°-55'-37
direct	4039 Dec 23 04:06	9°♈44'55		minimum elong	4048 Apr 09 17:34	21°♈09'16	14°55'39
				max. Earth dist.	4048 Apr 12 12:44	21°♈13'37	45.02047 AU
conjunction	4040 Mar 31 02:40	11°♈26'46	-13°-29'-46	retrograde	4048 Jul 21 14:41	22°♈50'38	
minimum elong	4040 Mar 31 02:31	11°♈26'45	13°29'47	min. Earth dist.	4048 Oct 10 12:40	21°♈49'14	43.19232 AU
max. Earth dist.	4040 Apr 02 22:54	11°♈31'22	43.32967 AU	opposition	4048 Oct 13 06:22	21°♈45'55	-15°-41'-16
retrograde	4040 Jul 11 21:18	13°♈11'58		direct	4049 Jan 02 13:04	20°♈42'30	
min. Earth dist.	4040 Sep 30 11:16	12°♈09'20	41.49830 AU				
opposition	4040 Oct 03 08:21	12°♈05'44	-14°-15'-6	conjunction	4049 Apr 11 03:50	22°♈19'48	-15°-4'-16
direct	4040 Dec 23 16:53	11°♈00'40		minimum elong	4049 Apr 11 03:44	22°♈19'47	15°04'16
				max. Earth dist.	4049 Apr 13 22:17	22°♈24'05	45.22063 AU
conjunction	4041 Apr 01 14:33	12°♈41'55	-13°-42'-12	retrograde	4049 Jul 22 23:05	24°♈00'45	
minimum elong	4041 Apr 01 14:22	12°♈41'54	13°42'12	min. Earth dist.	4049 Oct 11 23:23	22°♈59'32	43.39181 AU
max. Earth dist.	4041 Apr 04 11:19	12°♈46'32	43.54897 AU	opposition	4049 Oct 14 16:51	22°♈56'14	-15°-49'-53
retrograde	4041 Jul 13 09:09	14°♈26'35		direct	4050 Jan 03 23:57	21°♈53'01	
min. Earth dist.	4041 Oct 02 01:18	13°♈24'01	41.71783 AU				
opposition	4041 Oct 04 20:56	13°♈20'30	-14°-27'-39	conjunction	4050 Apr 12 13:41	23°♈29'55	-15°-12'-30
direct	4041 Dec 25 06:14	12°♈15'37		minimum elong	4050 Apr 12 13:34	23°♈29'54	15°12'31
				max. Earth dist.	4050 Apr 15 06:46	23°♈34'06	45.41665 AU
conjunction	4042 Apr 03 02:00	13°♈56'18	-13°-54'-8	retrograde	4050 Jul 24 09:08	25°♈10'28	
minimum elong	4042 Apr 03 01:51	13°♈56'17	13°54'10	min. Earth dist.	4050 Oct 13 10:55	24°♈09'23	43.58703 AU
max. Earth dist.	4042 Apr 05 21:46	14°♈00'49	43.76543 AU	opposition	4050 Oct 16 03:28	24°♈06'08	-15°-58'-5
retrograde	4042 Jul 14 22:06	15°♈40'24		direct	4051 Jan 05 10:48	23°♈03'08	
min. Earth dist.	4042 Oct 03 12:55	14°♈38'02	41.93477 AU				
opposition	4042 Oct 06 09:17	14°♈34'30	-14°-39'-41	conjunction	4051 Apr 13 23:25	24°♈39'36	-15°-20'-20
direct	4042 Dec 26 16:46	13°♈29'47		minimum elong	4051 Apr 13 23:20	24°♈39'35	15°20'21
				max. Earth dist.	4051 Apr 16 16:37	24°♈43'47	45.60821 AU
conjunction	4043 Apr 04 13:03	15°♈09'55	-14°-5'-35	retrograde	4051 Jul 25 16:51	26°♈19'45	
minimum elong	4043 Apr 04 12:53	15°♈09'55	14°05'36	min. Earth dist.	4051 Oct 14 22:36	25°♈18'47	43.77742 AU
max. Earth dist.	4043 Apr 07 09:02	15°♈14'26	43.97951 AU	opposition	4051 Oct 17 13:51	25°♈15'36	-16°-5'-53
retrograde	4043 Jul 16 09:46	16°♈53'32		direct	4052 Jan 07 00:00	24°♈12'46	
min. Earth dist.	4043 Oct 05 02:05	15°♈51'15	42.14965 AU				
opposition	4043 Oct 07 21:33	15°♈47'47	-14°-51'-12	conjunction	4052 Apr 14 08:58	25°♈48'48	-15°-27'-47
direct	4043 Dec 28 03:49	14°♈43'16		minimum elong	4052 Apr 14 08:52	25°♈48'48	15°27'49
				max. Earth dist.	4052 Apr 17 00:13	25°♈52'50	45.79509 AU
conjunction	4044 Apr 05 00:06	16°♈22'52	-14°-16'-33	retrograde	4052 Jul 26 04:40	27°♈28'32	
minimum elong	4044 Apr 04 23:58	16°♈22'52	14°16'34	min. Earth dist.	4052 Oct 15 08:39	26°♈27'42	43.96322 AU
max. Earth dist.	4044 Apr 07 20:20	16°♈27'23	44.19181 AU	opposition	4052 Oct 17 23:49	26°♈24'33	-16°-13'-17
retrograde	4044 Jul 16 17:50	18°♈05'59		direct	4053 Jan 07 08:55	25°♈21'52	
min. Earth dist.	4044 Oct 05 13:37	17°♈03'54	42.36259 AU				
opposition	4044 Oct 08 09:15	17°♈00'25	-15°-2'-12	conjunction	4053 Apr 15 18:20	26°♈57'28	-15°-34'-51
direct	4044 Dec 28 18:02	15°♈56'06		minimum elong	4053 Apr 15 18:16	26°♈57'28	15°34'53
				max. Earth dist.	4053 Apr 18 09:35	27°♈01'29	45.97748 AU
conjunction	4045 Apr 06 10:46	17°♈35'13	-14°-27'-1	retrograde	4053 Jul 27 16:24	28°♈36'48	
minimum elong	4045 Apr 06 10:38	17°♈35'12	14°27'02	min. Earth dist.	4053 Oct 16 20:22	27°♈35'59	44.14475 AU
max. Earth dist.	4045 Apr 09 05:58	17°♈39'38	44.40223 AU	opposition	4053 Oct 19 09:43	27°♈32'56	-16°-20'-17
retrograde	4045 Jul 18 04:24	19°♈17'51		direct	4054 Jan 08 17:07	26°♈30'25	
min. Earth dist.	4045 Oct 07 01:12	18°♈15'57	42.57372 AU				
opposition	4045 Oct 09 20:52	18°♈12'30	-15°-12'-41	conjunction	4054 Apr 17 03:22	28°♈05'35	-15°-41'-32
direct	4045 Dec 30 06:15	17°♈08'24		minimum elong	4054 Apr 17 03:17	28°♈05'34	15°41'33
				max. Earth dist.	4054 Apr 19 17:51	28°♈09'32	46.15606 AU
conjunction	4046 Apr 07 21:18	18°♈47'01	-14°-37'-1	retrograde	4054 Jul 28 23:50	29°♈44'29	
minimum elong	4046 Apr 07 21:10	18°♈47'01	14°37'02	min. Earth dist.	4054 Oct 18 05:33	28°♈43'49	44.32266 AU
max. Earth dist.	4046 Apr 10 17:24	18°♈51'29	44.61072 AU	opposition	4054 Oct 20 19:12	28°♈40'45	-16°-26'-53

direct	4055 Jan 10 02:36	27° Υ 38'22		min. Earth dist.	4062 Oct 27 08:49	7° Υ 29'52	45.63887 AU
				opposition	4062 Oct 29 17:00	7° Υ 27'08	-17°-5'-15
conjunction	4055 Apr 18 12:10	29° Υ 13'08	-15°-47'-49	direct	4063 Jan 19 03:23	6° Υ 25'59	
minimum elong	4055 Apr 18 12:07	29° Υ 13'07	15°47'51				
max. Earth dist.	4055 Apr 21 01:43	29° Υ 17'00	46.33137 AU	conjunction	4063 Apr 27 05:57	7° Υ 57'56	-16°-24'-22
	4055 May 20 19:32	0° Υ		minimum elong	4063 Apr 27 05:56	7° Υ 57'56	16°24'24
retrograde	4055 Jul 30 07:12	0° Υ 51'37		max. Earth dist.	4063 Apr 29 14:52	8° Υ 01'25	47.62736 AU
	4055 Oct 12 02:23	30° Υ		retrograde	4063 Aug 08 00:30	9° Υ 33'43	
min. Earth dist.	4055 Oct 19 15:54	29° Υ 51'03	44.49770 AU	min. Earth dist.	4063 Oct 28 19:01	8° Υ 33'57	45.78529 AU
opposition	4055 Oct 22 04:38	29° Υ 48'02	-16°-33'-3	opposition	4063 Oct 31 01:07	8° Υ 31'19	-17°-8'-26
direct	4056 Jan 11 12:32	28° Υ 45'47		direct	4064 Jan 20 12:04	7° Υ 30'18	
	4056 Apr 05 09:26	0° Υ					
				conjunction	4064 Apr 27 13:41	9° Υ 01'55	-16°-27'-25
conjunction	4056 Apr 18 20:57	0° Υ 20'09	-15°-53'-42	minimum elong	4064 Apr 27 13:41	9° Υ 01'55	16°27'26
minimum elong	4056 Apr 18 20:52	0° Υ 20'09	15°53'43	max. Earth dist.	4064 Apr 29 21:01	9° Υ 05'18	47.77074 AU
max. Earth dist.	4056 Apr 21 10:58	0° Υ 24'03	46.50402 AU	retrograde	4064 Aug 08 08:57	10° Υ 37'22	
retrograde	4056 Jul 30 12:53	1° Υ 58'16		min. Earth dist.	4064 Oct 29 02:51	9° Υ 37'44	45.92657 AU
min. Earth dist.	4056 Oct 20 01:44	0° Υ 57'47	44.66992 AU	opposition	4064 Oct 31 08:55	9° Υ 35'06	-17°-11'-18
opposition	4056 Oct 22 13:46	0° Υ 54'48	-16°-38'-49	direct	4065 Jan 20 18:30	8° Υ 34'12	
	4056 Dec 17 18:48	30° Υ					
direct	4057 Jan 12 00:43	29° Υ 52'43		conjunction	4065 Apr 28 21:11	10° Υ 05'30	-16°-30'-8
	4057 Feb 05 19:15	0° Υ		minimum elong	4065 Apr 28 21:10	10° Υ 05'30	16°30'10
				max. Earth dist.	4065 May 01 03:14	10° Υ 08'47	47.90907 AU
conjunction	4057 Apr 20 05:27	1° Υ 26'41	-15°-59'-12	retrograde	4065 Aug 09 16:27	11° Υ 40'38	
minimum elong	4057 Apr 20 05:24	1° Υ 26'41	15°59'13	min. Earth dist.	4065 Oct 30 12:16	10° Υ 40'59	46.06319 AU
max. Earth dist.	4057 Apr 22 18:01	1° Υ 30'29	46.67407 AU	opposition	4065 Nov 01 16:33	10° Υ 38'27	-17°-13'-51
retrograde	4057 Jul 31 22:11	3° Υ 04'26		direct	4066 Jan 22 01:18	9° Υ 37'40	
min. Earth dist.	4057 Oct 21 10:19	2° Υ 04'06	44.83962 AU				
opposition	4057 Oct 23 22:35	2° Υ 01'07	-16°-44'-11	conjunction	4066 Apr 30 04:35	11° Υ 08'40	-16°-32'-33
direct	4058 Jan 13 09:25	0° Υ 59'11		minimum elong	4066 Apr 30 04:37	11° Υ 08'40	16°32'35
				max. Earth dist.	4066 May 02 10:38	11° Υ 11'56	48.04321 AU
conjunction	4058 Apr 21 13:50	2° Υ 32'47	-16°-4'-18	retrograde	4066 Aug 10 20:26	12° Υ 43'28	
minimum elong	4058 Apr 21 13:47	2° Υ 32'47	16°04'18	min. Earth dist.	4066 Oct 31 20:18	11° Υ 43'54	46.19574 AU
max. Earth dist.	4058 Apr 24 02:43	2° Υ 36'34	46.84153 AU	opposition	4066 Nov 03 00:00	11° Υ 41'24	-17°-16'-5
retrograde	4058 Aug 02 07:58	4° Υ 10'11		direct	4067 Jan 23 10:45	10° Υ 40'42	
min. Earth dist.	4058 Oct 22 20:40	3° Υ 09'55	45.00658 AU				
opposition	4058 Oct 25 07:28	3° Υ 07'01	-16°-49'-8	conjunction	4067 May 01 11:34	12° Υ 11'24	-16°-34'-39
direct	4059 Jan 14 18:12	2° Υ 05'15		minimum elong	4067 May 01 11:34	12° Υ 11'24	16°34'40
				max. Earth dist.	4067 May 03 15:57	12° Υ 14'34	48.17370 AU
conjunction	4059 Apr 22 21:59	3° Υ 38'30	-16°-9'-1	retrograde	4067 Aug 12 03:30	13° Υ 45'54	
minimum elong	4059 Apr 22 21:57	3° Υ 38'29	16°09'02	min. Earth dist.	4067 Nov 02 03:56	12° Υ 46'26	46.32504 AU
max. Earth dist.	4059 Apr 25 10:04	3° Υ 42'13	47.00631 AU	opposition	4067 Nov 04 07:21	12° Υ 43'57	-17°-17'-58
retrograde	4059 Aug 03 17:59	5° Υ 15'32		direct	4068 Jan 24 18:27	11° Υ 43'21	
min. Earth dist.	4059 Oct 24 05:02	4° Υ 15'27	45.17052 AU				
opposition	4059 Oct 26 16:04	4° Υ 12'33	-16°-53'-42	conjunction	4068 May 01 18:41	13° Υ 13'46	-16°-36'-25
direct	4060 Jan 16 00:22	3° Υ 10'56		minimum elong	4068 May 01 18:43	13° Υ 13'46	16°36'26
				max. Earth dist.	4068 May 03 23:23	13° Υ 16'56	48.30108 AU
conjunction	4060 Apr 23 06:04	4° Υ 43'51	-16°-13'-22	retrograde	4068 Aug 12 10:24	14° Υ 48'00	
minimum elong	4060 Apr 23 06:02	4° Υ 43'51	16°13'22	min. Earth dist.	4068 Nov 02 12:28	13° Υ 48'33	46.45129 AU
max. Earth dist.	4060 Apr 25 17:15	4° Υ 47'30	47.16781 AU	opposition	4068 Nov 04 14:24	13° Υ 46'08	-17°-19'-31
retrograde	4060 Aug 04 02:48	6° Υ 20'34		direct	4069 Jan 25 03:35	12° Υ 45'40	
min. Earth dist.	4060 Oct 24 14:53	5° Υ 20'33	45.33102 AU				
opposition	4060 Oct 27 00:31	5° Υ 17'44	-16°-57'-54	conjunction	4069 May 03 01:37	14° Υ 15'48	-16°-37'-51
direct	4061 Jan 16 07:19	4° Υ 16'17		minimum elong	4069 May 03 01:38	14° Υ 15'48	16°37'51
				max. Earth dist.	4069 May 05 05:08	14° Υ 18'54	48.42578 AU
conjunction	4061 Apr 24 14:14	5° Υ 48'52	-16°-17'-21		4069 Jun 03 23:43	15° Υ	
minimum elong	4061 Apr 24 14:12	5° Υ 48'52	16°17'23	retrograde	4069 Aug 13 19:49	15° Υ 49'45	
max. Earth dist.	4061 Apr 27 01:21	5° Υ 52'31	47.32562 AU		4069 Oct 26 11:16	15° Υ	
retrograde	4061 Aug 05 07:38	7° Υ 25'16		min. Earth dist.	4069 Nov 03 19:01	14° Υ 50'27	46.57483 AU
min. Earth dist.	4061 Oct 26 00:06	6° Υ 25'22	45.48728 AU	opposition	4069 Nov 05 21:19	14° Υ 48'02	-17°-20'-43
opposition	4061 Oct 28 08:47	6° Υ 22'35	-17°-1'-44	direct	4070 Jan 26 08:14	13° Υ 47'41	
direct	4062 Jan 17 18:23	5° Υ 21'18			4070 Apr 22 01:19	15° Υ	
conjunction	4062 Apr 25 22:01	6° Υ 53'34	-16°-21'-1	conjunction	4070 May 04 08:13	15° Υ 17'33	-16°-38'-57
minimum elong	4062 Apr 25 22:01	6° Υ 53'34	16°21'02	minimum elong	4070 May 04 08:16	15° Υ 17'33	16°38'59
max. Earth dist.	4062 Apr 28 07:05	6° Υ 57'05	47.47895 AU	max. Earth dist.	4070 May 06 11:11	15° Υ 20'36	48.54770 AU
retrograde	4062 Aug 06 15:35	8° Υ 29'39		retrograde	4070 Aug 15 04:43	16° Υ 51'15	

min. Earth dist.	4070 Nov 05 03:26	15° ♁ 52'00	46.69564 AU	opposition	4078 Nov 15 07:04	23° ♁ 54'33	-17°-17'-48
opposition	4070 Nov 07 04:18	15° ♁ 49'40	-17°-21'-35	direct	4079 Feb 04 20:27	22° ♁ 55'06	
	4070 Dec 27 14:12	15° ♁					
direct	4071 Jan 27 11:50	14° ♁ 49'26		conjunction	4079 May 13 17:48	24° ♁ 22'55	-16°-35'-42
	4071 Feb 27 04:52	15° ♁		minimum elong	4079 May 13 17:54	24° ♁ 22'55	16°35'44
				max. Earth dist.	4079 May 15 11:58	24° ♁ 25'23	49.47187 AU
conjunction	4071 May 05 15:00	16° ♁ 19'04	-16°-39'-43	retrograde	4079 Aug 24 08:53	25° ♁ 54'30	
minimum elong	4071 May 05 15:02	16° ♁ 19'04	16°39'44	min. Earth dist.	4079 Nov 14 20:10	24° ♁ 55'43	47.60003 AU
max. Earth dist.	4071 May 07 17:56	16° ♁ 22'07	48.66698 AU	opposition	4079 Nov 16 12:47	24° ♁ 53'48	-17°-16'-5
retrograde	4071 Aug 16 08:29	17° ♁ 52'32		direct	4080 Feb 06 02:21	23° ♁ 54'24	
min. Earth dist.	4071 Nov 06 10:20	16° ♁ 53'23	46.81345 AU				
opposition	4071 Nov 08 10:56	16° ♁ 51'04	-17°-22'-7	conjunction	4080 May 13 23:41	25° ♁ 22'01	-16°-33'-59
direct	4072 Jan 28 20:23	15° ♁ 50'58		minimum elong	4080 May 13 23:45	25° ♁ 22'01	16°34'01
				max. Earth dist.	4080 May 15 17:03	25° ♁ 24'26	49.55326 AU
conjunction	4072 May 05 21:30	17° ♁ 20'23	-16°-40'-11	retrograde	4080 Aug 24 17:28	26° ♁ 53'23	
minimum elong	4072 May 05 21:33	17° ♁ 20'23	16°40'13	min. Earth dist.	4080 Nov 15 03:39	25° ♁ 54'36	47.67961 AU
max. Earth dist.	4072 May 07 22:42	17° ♁ 23'19	48.78314 AU	opposition	4080 Nov 16 18:34	25° ♁ 52'45	-17°-14'-4
retrograde	4072 Aug 16 13:27	18° ♁ 53'36		direct	4081 Feb 06 05:56	24° ♁ 53'26	
min. Earth dist.	4072 Nov 06 17:43	17° ♁ 54'34	46.92796 AU				
opposition	4072 Nov 08 17:35	17° ♁ 52'16	-17°-22'-20	conjunction	4081 May 15 05:33	26° ♁ 20'51	-16°-31'-59
direct	4073 Jan 29 04:17	16° ♁ 52'18		minimum elong	4081 May 15 05:40	26° ♁ 20'51	16°32'01
				max. Earth dist.	4081 May 16 22:46	26° ♁ 23'15	49.63169 AU
conjunction	4073 May 07 04:09	18° ♁ 21'30	-16°-40'-21	retrograde	4081 Aug 25 21:30	27° ♁ 52'00	
minimum elong	4073 May 07 04:12	18° ♁ 21'30	16°40'22	min. Earth dist.	4081 Nov 16 09:10	26° ♁ 53'18	47.75616 AU
max. Earth dist.	4073 May 09 05:26	18° ♁ 24'26	48.89561 AU	opposition	4081 Nov 18 00:01	26° ♁ 51'28	-17°-11'-46
retrograde	4073 Aug 17 19:37	19° ♁ 54'30		direct	4082 Feb 07 11:41	25° ♁ 52'13	
min. Earth dist.	4073 Nov 08 01:57	18° ♁ 55'30	47.03834 AU				
opposition	4073 Nov 10 00:01	18° ♁ 53'18	-17°-22'-15	conjunction	4082 May 16 11:10	27° ♁ 19'28	-16°-29'-42
direct	4074 Jan 30 12:59	17° ♁ 53'28		minimum elong	4082 May 16 11:16	27° ♁ 19'28	16°29'43
				max. Earth dist.	4082 May 18 02:40	27° ♁ 21'45	49.70726 AU
conjunction	4074 May 08 10:39	19° ♁ 22'26	-16°-40'-14	retrograde	4082 Aug 27 02:05	28° ♁ 50'26	
minimum elong	4074 May 08 10:43	19° ♁ 22'26	16°40'16	min. Earth dist.	4082 Nov 17 15:31	27° ♁ 51'47	47.82994 AU
max. Earth dist.	4074 May 10 10:16	19° ♁ 25'15	49.00386 AU	opposition	4082 Nov 19 05:36	27° ♁ 49'59	-17°-9'-11
retrograde	4074 Aug 19 04:06	20° ♁ 55'13		direct	4083 Feb 08 17:15	26° ♁ 50'49	
min. Earth dist.	4074 Nov 09 08:27	19° ♁ 56'20	47.14417 AU				
opposition	4074 Nov 11 06:25	19° ♁ 54'08	-17°-21'-54	conjunction	4083 May 17 16:48	28° ♁ 17'55	-16°-27'-8
direct	4075 Jan 31 18:27	18° ♁ 54'25		minimum elong	4083 May 17 16:55	28° ♁ 17'55	16°27'10
				max. Earth dist.	4083 May 19 08:40	28° ♁ 20'14	49.77993 AU
conjunction	4075 May 09 17:01	20° ♁ 23'09	-16°-39'-51	retrograde	4083 Aug 28 06:10	29° ♁ 48'44	
minimum elong	4075 May 09 17:05	20° ♁ 23'10	16°39'51	min. Earth dist.	4083 Nov 18 22:24	28° ♁ 50'07	47.90054 AU
max. Earth dist.	4075 May 11 15:22	20° ♁ 25'53	49.10716 AU	opposition	4083 Nov 20 11:07	28° ♁ 48'23	-17°-6'-18
retrograde	4075 Aug 20 12:20	21° ♁ 55'43		direct	4084 Feb 10 01:15	27° ♁ 49'19	
min. Earth dist.	4075 Nov 10 17:03	20° ♁ 56'49	47.24486 AU				
opposition	4075 Nov 12 12:54	20° ♁ 54'44	-17°-21'-16	conjunction	4084 May 17 22:27	29° ♁ 16'16	-16°-24'-18
direct	4076 Feb 01 22:55	19° ♁ 55'06		minimum elong	4084 May 17 22:34	29° ♁ 16'17	16°24'19
				max. Earth dist.	4084 May 19 12:44	29° ♁ 18'30	49.84944 AU
conjunction	4076 May 09 23:34	21° ♁ 23'37	-16°-39'-13		4084 Jun 19 18:13	0° ♁	
minimum elong	4076 May 09 23:37	21° ♁ 23'37	16°39'14	retrograde	4084 Aug 28 13:26	0° ♁ 46'57	
max. Earth dist.	4076 May 11 21:18	21° ♁ 26'18	49.20536 AU		4084 Nov 08 19:37	30° ♁	
retrograde	4076 Aug 20 16:57	22° ♁ 55'54			4084 Nov 19 03:36	29° ♁ 48'26	47.96770 AU
min. Earth dist.	4076 Nov 10 23:53	21° ♁ 57'04	47.34025 AU	min. Earth dist.	4084 Nov 20 16:18	29° ♁ 46'42	-17°-3'-9
opposition	4076 Nov 12 18:57	21° ♁ 55'01	-17°-20'-23	opposition	4085 Feb 10 05:58	28° ♁ 47'44	
direct	4077 Feb 02 04:40	20° ♁ 55'26		direct	4085 May 08 14:42	0° ♁	
conjunction	4077 May 11 05:46	22° ♁ 23'44	-16°-38'-19	conjunction	4085 May 19 04:04	0° ♁ 14'35	-16°-21'-12
minimum elong	4077 May 11 05:51	22° ♁ 23'44	16°38'20	minimum elong	4085 May 19 04:11	0° ♁ 14'35	16°21'14
max. Earth dist.	4077 May 13 01:20	22° ♁ 26'18	49.29848 AU	max. Earth dist.	4085 May 20 17:20	0° ♁ 16'44	49.91510 AU
retrograde	4077 Aug 21 22:36	23° ♁ 55'47		retrograde	4085 Aug 29 21:05	1° ♁ 45'07	
min. Earth dist.	4077 Nov 12 06:59	22° ♁ 56'57	47.43090 AU	min. Earth dist.	4085 Nov 20 11:09	0° ♁ 46'37	48.03073 AU
opposition	4077 Nov 14 01:04	22° ♁ 54'57	-17°-19'-13	opposition	4085 Nov 21 21:42	0° ♁ 44'59	-16°-59'-45
direct	4078 Feb 03 11:00	21° ♁ 55'27			4086 Jan 06 03:35	30° ♁	
				direct	4086 Feb 11 09:32	29° ♁ 46'07	
conjunction	4078 May 12 11:49	23° ♁ 23'30	-16°-37'-9		4086 Mar 19 02:54	0° ♁	
minimum elong	4078 May 12 11:53	23° ♁ 23'30	16°37'10				
max. Earth dist.	4078 May 14 07:22	23° ♁ 26'03	49.38707 AU	conjunction	4086 May 20 09:38	1° ♁ 12'50	-16°-17'-51
retrograde	4078 Aug 23 01:48	24° ♁ 55'19		minimum elong	4086 May 20 09:45	1° ♁ 12'51	16°17'52
min. Earth dist.	4078 Nov 13 14:31	23° ♁ 56'28	47.51723 AU	max. Earth dist.	4086 May 21 22:24	1° ♁ 14'58	49.97641 AU

retrograde	4086 Aug 31 02:21	2°II43'15		direct	4095 Feb 20 09:17	8°II24'49	
min. Earth dist.	4086 Nov 21 16:55	1°II44'49	48.08892 AU				
opposition	4086 Nov 23 02:56	1°II43'13	-16°-56'-6	conjunction	4095 May 29 09:31	9°II50'29	-15°-37'-17
direct	4087 Feb 12 13:21	0°II44'26		minimum elong	4095 May 29 09:40	9°II50'29	15°37'19
				max. Earth dist.	4095 May 30 11:52	9°II51'59	50.31731 AU
conjunction	4087 May 21 15:12	2°II11'03	-16°-14'-16	retrograde	4095 Sep 08 23:22	11°II19'41	
minimum elong	4087 May 21 15:19	2°II11'03	16°14'18	opposition	4095 Dec 01 22:49	10°II20'06	-16°-12'-31
max. Earth dist.	4087 May 23 01:35	2°II13'01	50.03262 AU	min. Earth dist.	4095 Nov 30 22:46	10°II21'13	48.40454 AU
retrograde	4087 Sep 01 07:51	3°II41'18		direct	4096 Feb 21 13:34	9°II21'38	
min. Earth dist.	4087 Nov 22 23:37	2°II42'53	48.14189 AU				
opposition	4087 Nov 24 08:09	2°II41'22	-16°-52'-13	conjunction	4096 May 29 14:42	10°II47'14	-15°-31'-33
direct	4088 Feb 13 17:57	1°II42'39		minimum elong	4096 May 29 14:52	10°II47'14	15°31'35
				max. Earth dist.	4096 May 30 16:47	10°II48'42	50.33748 AU
conjunction	4088 May 21 20:55	3°II09'08	-16°-10'-29	retrograde	4096 Sep 09 05:24	12°II16'20	
minimum elong	4088 May 21 21:03	3°II09'09	16°10'30	min. Earth dist.	4096 Dec 01 03:32	11°II17'55	48.42187 AU
max. Earth dist.	4088 May 23 06:49	3°II11'05	50.08341 AU	opposition	4096 Dec 02 03:20	11°II16'49	-16°-6'-25
retrograde	4088 Sep 01 10:26	4°II39'16		direct	4097 Feb 21 16:26	10°II18'24	
min. Earth dist.	4088 Nov 23 06:31	3°II40'50	48.18922 AU				
opposition	4088 Nov 24 13:19	3°II39'23	-16°-48'-7	conjunction	4097 May 30 19:40	11°II43'56	-15°-25'-34
direct	4089 Feb 14 02:12	2°II40'43		minimum elong	4097 May 30 19:50	11°II43'57	15°25'35
				max. Earth dist.	4097 May 31 19:38	11°II45'18	50.35387 AU
conjunction	4089 May 23 02:22	4°II07'04	-16°-6'-27	retrograde	4097 Sep 10 11:10	13°II12'58	
minimum elong	4089 May 23 02:29	4°II07'04	16°06'29	min. Earth dist.	4097 Dec 02 09:25	12°II14'32	48.43527 AU
max. Earth dist.	4089 May 24 10:19	4°II08'54	50.12887 AU	opposition	4097 Dec 03 07:52	12°II13'30	-16°00'-4
retrograde	4089 Sep 02 16:20	5°II37'03		direct	4098 Feb 22 18:57	11°II15'07	
min. Earth dist.	4089 Nov 24 11:52	4°II38'38	48.23143 AU				
opposition	4089 Nov 25 18:13	4°II37'13	-16°-43'-47	conjunction	4098 Jun 01 00:52	12°II40'37	-15°-19'-22
direct	4090 Feb 15 08:29	3°II38'35		minimum elong	4098 Jun 01 01:02	12°II40'38	15°19'24
				max. Earth dist.	4098 Jun 02 00:36	12°II41'58	50.36599 AU
conjunction	4090 May 24 07:44	5°II04'48	-16°-2'-13	retrograde	4098 Sep 11 13:47	14°II09'35	
minimum elong	4090 May 24 07:52	5°II04'48	16°02'14	opposition	4098 Dec 04 12:25	13°II10'09	-15°-53'-30
max. Earth dist.	4090 May 25 14:33	5°II06'33	50.16939 AU	min. Earth dist.	4098 Dec 03 15:35	13°II11'08	48.44395 AU
retrograde	4090 Sep 04 01:08	6°II34'37		direct	4099 Feb 24 01:33	12°II11'49	
opposition	4090 Nov 26 23:16	5°II34'50	-16°-39'-12				
min. Earth dist.	4090 Nov 25 18:55	5°II36'09	48.26907 AU	conjunction	4099 Jun 02 05:58	13°II37'16	-15°-12'-57
direct	4091 Feb 16 11:36	4°II36'14		minimum elong	4099 Jun 02 06:08	13°II37'16	15°12'57
				max. Earth dist.	4099 Jun 03 03:44	13°II38'30	50.37324 AU
conjunction	4091 May 25 13:01	6°II02'18	-15°-57'-44	retrograde	4099 Sep 12 18:12	15°II06'09	
minimum elong	4091 May 25 13:09	6°II02'19	15°57'45	opposition	4099 Dec 05 16:55	14°II06'46	-15°-46'-42
max. Earth dist.	4091 May 26 19:24	6°II04'03	50.20577 AU	min. Earth dist.	4099 Dec 04 20:39	14°II07'43	48.44748 AU
retrograde	4091 Sep 05 05:54	7°II31'59		direct	4100 Feb 25 07:37	13°II08'27	
min. Earth dist.	4091 Nov 26 23:55	6°II33'33	48.30267 AU				
opposition	4091 Nov 28 04:03	6°II32'14	-16°-34'-23	conjunction	4100 Jun 03 11:10	14°II33'51	-15°-6'-19
direct	4092 Feb 17 15:21	5°II33'38		minimum elong	4100 Jun 03 11:19	14°II33'51	15°06'21
				max. Earth dist.	4100 Jun 04 07:21	14°II34'59	50.37503 AU
conjunction	4092 May 25 18:14	6°II59'36	-15°-53'00	retrograde	4100 Sep 14 01:22	16°II02'40	
minimum elong	4092 May 25 18:23	6°II59'37	15°53'01	opposition	4100 Dec 06 21:24	15°II03'19	-15°-39'-42
max. Earth dist.	4092 May 26 22:43	7°II01'14	50.23838 AU	min. Earth dist.	4100 Dec 06 03:28	15°II04'09	48.44555 AU
retrograde	4092 Sep 05 09:51	8°II29'08					
min. Earth dist.	4092 Nov 27 05:48	7°II30'40	48.33285 AU				
opposition	4092 Nov 28 08:45	7°II29'25	-16°-29'-19				
direct	4093 Feb 17 19:56	6°II30'51					
conjunction	4093 May 26 23:30	7°II56'43	-15°-48'-1				
minimum elong	4093 May 26 23:37	7°II56'43	15°48'02				
max. Earth dist.	4093 May 28 04:07	7°II58'21	50.26770 AU				
retrograde	4093 Sep 06 11:09	9°II26'07					
min. Earth dist.	4093 Nov 28 11:42	8°II27'38	48.35976 AU				
opposition	4093 Nov 29 13:29	8°II26'26	-16°-23'-59				
direct	4094 Feb 19 04:01	7°II27'54					
conjunction	4094 May 28 04:26	8°II53'39	-15°-42'-47				
minimum elong	4094 May 28 04:35	8°II53'40	15°42'48				
max. Earth dist.	4094 May 29 07:38	8°II55'12	50.29404 AU				
retrograde	4094 Sep 07 16:26	10°II22'57					
opposition	4094 Nov 30 18:10	9°II23'18	-16°-18'-23				
min. Earth dist.	4094 Nov 29 16:14	9°II24'31	48.38371 AU				

direct	4100 Feb 25 07:37	13°II08'27		conjunction	4108 Jun 11 02:51	22°II03'35	-14°-5'-16
				minimum elong	4108 Jun 11 03:02	22°II03'36	14°05'17
conjunction	4100 Jun 03 11:10	14°II33'51	-15°-6'-19	max. Earth dist.	4108 Jun 11 15:30	22°II04'18	50.24047 AU
minimum elong	4100 Jun 03 11:19	14°II33'51	15°06'21	retrograde	4108 Sep 21 14:28	23°II32'05	
max. Earth dist.	4100 Jun 04 07:21	14°II34'59	50.37503 AU	opposition	4108 Dec 14 07:27	22°II32'52	-14°-35'-21
retrograde	4100 Sep 14 01:22	16°II02'40		min. Earth dist.	4108 Dec 13 20:53	22°II33'21	48.28722 AU
opposition	4100 Dec 06 21:24	15°II03'19	-15°-39'-42	direct	4109 Mar 05 20:49	21°II34'32	
min. Earth dist.	4100 Dec 06 03:28	15°II04'09	48.44555 AU				
direct	4101 Feb 26 11:40	14°II05'00		conjunction	4109 Jun 12 07:48	22°II59'51	-13°-56'-34
				minimum elong	4109 Jun 12 07:59	22°II59'52	13°56'36
conjunction	4101 Jun 04 16:21	15°II30'20	-14°-59'-29	max. Earth dist.	4109 Jun 12 18:51	23°II00'29	50.20918 AU
minimum elong	4101 Jun 04 16:32	15°II30'21	14°59'30	retrograde	4109 Sep 22 18:02	24°II28'23	
max. Earth dist.	4101 Jun 05 11:47	15°II31'26	50.37164 AU	opposition	4109 Dec 15 11:40	23°II29'12	-14°-26'-12
retrograde	4101 Sep 15 06:52	16°II59'05		min. Earth dist.	4109 Dec 15 01:30	23°II29'40	48.25267 AU
min. Earth dist.	4101 Dec 07 08:12	16°II00'34	48.43847 AU	direct	4110 Mar 07 02:47	22°II30'53	
opposition	4101 Dec 08 01:46	15°II59'44	-15°-32'-30				
direct	4102 Feb 27 14:38	15°II01'25		conjunction	4110 Jun 13 12:43	23°II56'15	-13°-47'-39
				minimum elong	4110 Jun 13 12:54	23°II56'15	13°47'39
conjunction	4102 Jun 05 21:08	16°II26'43	-14°-52'-26	max. Earth dist.	4110 Jun 13 22:27	23°II56'48	50.17372 AU
minimum elong	4102 Jun 05 21:18	16°II26'43	14°52'28	retrograde	4110 Sep 24 00:57	25°II24'49	
max. Earth dist.	4102 Jun 06 14:26	16°II27'41	50.36337 AU	opposition	4110 Dec 16 16:03	24°II25'39	-14°-16'-50
retrograde	4102 Sep 16 11:44	17°II55'23		min. Earth dist.	4110 Dec 16 08:03	24°II26'01	48.21362 AU
opposition	4102 Dec 09 06:13	16°II56'02	-15°-25'-4	direct	4111 Mar 08 07:27	23°II27'20	
min. Earth dist.	4102 Dec 08 14:10	16°II56'47	48.42694 AU				
direct	4103 Feb 28 18:29	15°II57'42		conjunction	4111 Jun 14 17:59	24°II52'45	-13°-38'-30
				minimum elong	4111 Jun 14 18:10	24°II52'46	13°38'32
conjunction	4103 Jun 07 02:14	17°II22'58	-14°-45'-10	max. Earth dist.	4111 Jun 15 02:58	24°II53'15	50.13355 AU
minimum elong	4103 Jun 07 02:25	17°II22'58	14°45'12	retrograde	4111 Sep 25 08:19	26°II21'20	
max. Earth dist.	4103 Jun 07 19:28	17°II23'56	50.35088 AU	opposition	4111 Dec 17 20:13	25°II22'11	-14°-7'-15
retrograde	4103 Sep 17 12:52	18°II51'34		min. Earth dist.	4111 Dec 17 12:46	25°II22'31	48.16946 AU
opposition	4103 Dec 10 10:26	17°II52'14	-15°-17'-24	direct	4112 Mar 08 09:17	24°II23'51	
min. Earth dist.	4103 Dec 09 19:37	17°II52'55	48.41139 AU				
direct	4104 Mar 01 01:49	16°II53'53		conjunction	4112 Jun 14 23:09	25°II49'18	-13°-29'-10
				minimum elong	4112 Jun 14 23:21	25°II49'19	13°29'11
conjunction	4104 Jun 07 07:11	18°II19'07	-14°-37'-40	max. Earth dist.	4112 Jun 15 05:37	25°II49'40	50.08807 AU
minimum elong	4104 Jun 07 07:20	18°II19'08	14°37'42	retrograde	4112 Sep 25 14:37	27°II17'54	
max. Earth dist.	4104 Jun 07 22:45	18°II20'00	50.33483 AU	opposition	4112 Dec 18 00:36	26°II18'44	-13°-57'-28
retrograde	4104 Sep 17 17:34	19°II47'41		min. Earth dist.	4112 Dec 17 18:58	26°II18'59	48.11997 AU
opposition	4104 Dec 10 14:37	18°II48'21	-15°-9'-29	direct	4113 Mar 09 12:03	25°II20'22	
min. Earth dist.	4104 Dec 09 23:55	18°II49'02	48.39251 AU				
direct	4105 Mar 02 06:59	17°II49'59		conjunction	4113 Jun 16 04:21	26°II45'51	-13°-19'-38
				minimum elong	4113 Jun 16 04:32	26°II45'52	13°19'39
conjunction	4105 Jun 08 12:02	19°II15'13	-14°-29'-56	max. Earth dist.	4113 Jun 16 10:16	26°II46'11	50.03722 AU
minimum elong	4105 Jun 08 12:14	19°II15'13	14°29'58	retrograde	4113 Sep 26 15:52	28°II14'27	
max. Earth dist.	4105 Jun 09 02:45	19°II16'03	50.31546 AU	opposition	4113 Dec 19 04:54	27°II15'15	-13°-47'-29
retrograde	4105 Sep 19 00:02	20°II43'45		min. Earth dist.	4113 Dec 19 00:40	27°II15'26	48.06517 AU
opposition	4105 Dec 11 18:54	19°II44'26	-15°-1'-20	direct	4114 Mar 10 18:52	26°II16'50	
min. Earth dist.	4105 Dec 11 06:01	19°II45'02	48.37053 AU				
direct	4106 Mar 03 11:04	18°II46'05		conjunction	4114 Jun 17 09:28	27°II42'21	-13°-9'-53
				minimum elong	4114 Jun 17 09:40	27°II42'22	13°09'54
conjunction	4106 Jun 09 16:59	20°II11'18	-14°-21'-57	max. Earth dist.	4114 Jun 17 13:33	27°II42'35	49.98153 AU
minimum elong	4106 Jun 09 17:10	20°II11'18	14°21'58	retrograde	4114 Sep 27 19:08	29°II10'57	
max. Earth dist.	4106 Jun 10 07:30	20°II12'07	50.29334 AU	opposition	4114 Dec 20 09:06	28°II11'43	-13°-37'-16
retrograde	4106 Sep 20 05:48	21°II39'48		min. Earth dist.	4114 Dec 20 05:21	28°II11'53	48.00582 AU
opposition	4106 Dec 12 23:03	20°II40'31	-14°-52'-55	direct	4115 Mar 12 00:50	27°II13'14	
min. Earth dist.	4106 Dec 12 10:04	20°II41'07	48.34575 AU				
direct	4107 Mar 04 13:34	19°II42'10		conjunction	4115 Jun 18 14:36	28°II38'48	-12°-59'-55
				minimum elong	4115 Jun 18 14:46	28°II38'48	12°59'56
conjunction	4107 Jun 10 21:47	21°II07'24	-14°-13'-44	max. Earth dist.	4115 Jun 18 17:25	28°II38'57	49.92137 AU
minimum elong	4107 Jun 10 21:58	21°II07'25	14°13'45		4115 Sep 02 05:47	0°☿	
max. Earth dist.	4107 Jun 11 10:23	21°II08'07	50.26841 AU	retrograde	4115 Sep 29 00:45	0°☿07'25	
retrograde	4107 Sep 21 11:46	22°II35'54			4115 Oct 26 01:16	30°♂II	
opposition	4107 Dec 14 03:20	21°II36'39	-14°-44'-15	opposition	4115 Dec 21 13:27	29°II08'07	-13°-26'-49
min. Earth dist.	4107 Dec 13 15:34	21°II37'11	48.31814 AU	min. Earth dist.	4115 Dec 21 11:48	29°II08'12	47.94230 AU
direct	4108 Mar 04 15:08	20°II38'18		direct	4116 Mar 12 06:07	28°II09'35	

conjunction	4116 Jun 18 19:51	29°II35'11	-12°-49'-44	conjunction	4124 Jun 26 14:57	7°☾09'55	-11°-19'-49
minimum elong	4116 Jun 18 20:03	29°II35'12	12°49'45	minimum elong	4124 Jun 26 15:08	7°☾09'56	11°19'50
max. Earth dist.	4116 Jun 18 22:16	29°II35'20	49.85741 AU	max. Earth dist.	4124 Jun 26 07:25	7°☾09'29	49.22417 AU
	4116 Jul 07 08:39	0°☾		retrograde	4124 Oct 07 00:28	8°☾39'19	
retrograde	4116 Sep 29 06:10	1°☾03'50		opposition	4124 Dec 29 04:58	7°☾39'49	-11°-42'00
opposition	4116 Dec 21 17:31	0°☾04'30	-13°-16'-8	min. Earth dist.	4124 Dec 29 12:06	7°☾39'29	47.21459 AU
min. Earth dist.	4116 Dec 21 15:57	0°☾04'35	47.87514 AU	direct	4125 Mar 20 20:15	6°☾40'51	
	4116 Dec 25 17:34	30°RII					
direct	4117 Mar 13 09:53	29°II05'53		conjunction	4125 Jun 27 20:45	8°☾07'37	-11°-7'-35
	4117 May 27 05:03	0°☾		minimum elong	4125 Jun 27 20:57	8°☾07'38	11°07'36
				max. Earth dist.	4125 Jun 27 11:36	8°☾07'06	49.12482 AU
conjunction	4117 Jun 20 00:56	0°☾31'34	-12°-39'-19	retrograde	4125 Oct 08 06:25	9°☾37'09	
minimum elong	4117 Jun 20 01:07	0°☾31'35	12°39'19	opposition	4125 Dec 30 09:46	8°☾37'35	-11°-29'-12
max. Earth dist.	4117 Jun 20 01:18	0°☾31'35	49.79004 AU	min. Earth dist.	4125 Dec 30 19:09	8°☾37'09	47.11120 AU
retrograde	4117 Sep 30 13:14	2°☾00'14		direct	4126 Mar 22 01:53	7°☾38'32	
opposition	4117 Dec 22 21:53	1°☾00'53	-13°-5'-13				
min. Earth dist.	4117 Dec 22 21:35	1°☾00'53	47.80489 AU	conjunction	4126 Jun 29 02:29	9°☾05'27	-10°-55'-8
direct	4118 Mar 14 11:26	0°☾02'13		minimum elong	4126 Jun 29 02:39	9°☾05'28	10°55'10
				max. Earth dist.	4126 Jun 28 16:38	9°☾04'53	49.02054 AU
conjunction	4118 Jun 21 06:03	1°☾27'59	-12°-28'-39	retrograde	4126 Oct 09 12:34	10°☾35'06	
minimum elong	4118 Jun 21 06:15	1°☾27'59	12°28'41	opposition	4126 Dec 31 14:26	9°☾35'28	-11°-16'-12
max. Earth dist.	4118 Jun 21 06:35	1°☾28'00	49.71965 AU	min. Earth dist.	4127 Jan 01 00:06	9°☾35'01	47.00304 AU
retrograde	4118 Oct 01 16:38	2°☾56'42		direct	4127 Mar 23 06:10	8°☾36'18	
opposition	4118 Dec 24 02:15	1°☾57'18	-12°-54'-3				
min. Earth dist.	4118 Dec 24 02:54	1°☾57'17	47.73158 AU	conjunction	4127 Jun 30 08:17	10°☾03'23	-10°-42'-29
direct	4119 Mar 15 16:55	0°☾58'36		minimum elong	4127 Jun 30 08:29	10°☾03'23	10°42'30
				max. Earth dist.	4127 Jun 29 20:10	10°☾02'41	48.91169 AU
conjunction	4119 Jun 22 11:17	2°☾24'28	-12°-17'-45	retrograde	4127 Oct 10 21:10	11°☾33'08	
minimum elong	4119 Jun 22 11:28	2°☾24'28	12°17'46	opposition	4128 Jan 01 19:07	10°☾33'26	-11°-2'-57
max. Earth dist.	4119 Jun 22 10:19	2°☾24'25	49.64643 AU	min. Earth dist.	4128 Jan 02 06:30	10°☾32'53	46.89075 AU
retrograde	4119 Oct 02 20:30	3°☾53'16		direct	4128 Mar 23 07:47	9°☾34'09	
opposition	4119 Dec 25 06:27	2°☾53'51	-12°-42'-37				
min. Earth dist.	4119 Dec 25 07:21	2°☾53'49	47.65544 AU	conjunction	4128 Jun 30 14:18	11°☾01'24	-10°-29'-35
direct	4120 Mar 15 21:59	1°☾55'07		minimum elong	4128 Jun 30 14:29	11°☾01'25	10°29'36
				max. Earth dist.	4128 Jun 30 02:00	11°☾00'42	48.79889 AU
conjunction	4120 Jun 22 16:39	3°☾21'06	-12°-6'-37	retrograde	4128 Oct 11 01:44	12°☾31'17	
minimum elong	4120 Jun 22 16:51	3°☾21'07	12°06'39	opposition	4129 Jan 01 23:55	11°☾31'29	-10°-49'-27
max. Earth dist.	4120 Jun 22 14:29	3°☾20'59	49.57010 AU	min. Earth dist.	4129 Jan 02 12:17	11°☾30'54	46.77472 AU
retrograde	4120 Oct 03 02:20	4°☾50'01		direct	4129 Mar 24 13:21	10°☾32'06	
opposition	4120 Dec 25 10:57	3°☾50'35	-12°-30'-57				
min. Earth dist.	4120 Dec 25 13:44	3°☾50'28	47.57603 AU	conjunction	4129 Jul 01 20:03	11°☾59'31	-10°-16'-27
direct	4121 Mar 17 03:10	2°☾51'49		minimum elong	4129 Jul 01 20:15	11°☾59'32	10°16'28
				max. Earth dist.	4129 Jul 01 06:14	11°☾58'44	48.68278 AU
conjunction	4121 Jun 23 22:01	4°☾17'57	-11°-55'-15	retrograde	4129 Oct 12 05:58	13°☾29'33	
minimum elong	4121 Jun 23 22:13	4°☾17'57	11°55'16	opposition	4130 Jan 03 04:42	12°☾29'39	-10°-35'-42
max. Earth dist.	4121 Jun 23 19:32	4°☾17'48	49.49041 AU	min. Earth dist.	4130 Jan 03 17:21	12°☾29'03	46.65567 AU
retrograde	4121 Oct 04 09:44	5°☾46'58		direct	4130 Mar 25 18:44	11°☾30'09	
opposition	4121 Dec 26 15:18	4°☾47'33	-12°-19'-3	max. Earth dist.	4130 Jul 02 11:08	12°☾56'55	48.56367 AU
min. Earth dist.	4121 Dec 26 18:19	4°☾47'25	47.49286 AU				
direct	4122 Mar 18 05:34	3°☾48'45		conjunction	4130 Jul 03 02:02	12°☾57'46	-10°-3'-4
				minimum elong	4130 Jul 03 02:13	12°☾57'47	10°03'05
conjunction	4122 Jun 25 03:28	5°☾15'02	-11°-43'-39	retrograde	4130 Oct 13 09:56	14°☾27'58	
minimum elong	4122 Jun 25 03:39	5°☾15'03	11°43'41	opposition	4131 Jan 04 09:39	13°☾27'59	-10°-21'-42
max. Earth dist.	4122 Jun 24 22:39	5°☾14'46	49.40662 AU	min. Earth dist.	4131 Jan 04 23:59	13°☾27'18	46.53381 AU
retrograde	4122 Oct 05 17:37	6°☾44'11		direct	4131 Mar 27 02:14	12°☾28'23	
opposition	4122 Dec 27 19:50	5°☾44'46	-12°-6'-55				
min. Earth dist.	4122 Dec 28 00:43	5°☾44'32	47.40538 AU	conjunction	4131 Jul 04 08:10	13°☾56'11	-9°-49'-27
direct	4123 Mar 19 07:16	4°☾45'55		minimum elong	4131 Jul 04 08:21	13°☾56'12	9°49'29
				max. Earth dist.	4131 Jul 03 17:05	13°☾55'19	48.44199 AU
conjunction	4123 Jun 26 09:12	6°☾12'22	-11°-31'-50	retrograde	4131 Oct 14 17:10	15°☾26'34	
minimum elong	4123 Jun 26 09:24	6°☾12'23	11°31'51	opposition	4132 Jan 05 14:35	14°☾26'30	-10°-7'-26
max. Earth dist.	4123 Jun 26 03:49	6°☾12'04	49.31804 AU	min. Earth dist.	4132 Jan 06 04:50	14°☾25'49	46.40928 AU
retrograde	4123 Oct 06 20:41	7°☾41'39		direct	4132 Mar 27 06:40	13°☾26'48	
opposition	4123 Dec 29 00:27	6°☾42'12	-11°-54'-34				
min. Earth dist.	4123 Dec 29 06:43	6°☾41'54	47.31266 AU	conjunction	4132 Jul 04 14:18	14°☾54'50	-9°-35'-35
direct	4124 Mar 19 13:48	5°☾43'18		minimum elong	4132 Jul 04 14:29	14°☾54'50	9°35'35
				max. Earth dist.	4132 Jul 03 21:09	14°☾53'51	48.31753 AU

retrograde	4132 Oct 15 02:25	16° 5 25'24		direct	4141 Apr 05 07:24	22° 5 24'50	
opposition	4133 Jan 05 19:38	15° 5 25'16	-9°-52'-55	max. Earth dist.	4141 Jul 13 00:27	23° 5 53'44	47.01458 AU
min. Earth dist.	4133 Jan 06 11:27	15° 5 24'31	46.28199 AU				
direct	4133 Mar 28 08:01	14° 5 25'28		conjunction	4141 Jul 14 04:10	23° 5 55'22	-7°-20'-4
				minimum elong	4141 Jul 14 04:19	23° 5 55'23	7°20'04
conjunction	4133 Jul 05 20:41	15° 5 53'45	-9°-21'-27	retrograde	4141 Oct 24 11:58	25° 5 28'06	
minimum elong	4133 Jul 05 20:51	15° 5 53'46	9°21'29	opposition	4142 Jan 14 21:58	24° 5 27'00	-7°-31'-3
max. Earth dist.	4133 Jul 05 03:27	15° 5 52'45	48.19008 AU	min. Earth dist.	4142 Jan 15 23:28	24° 5 25'45	44.94841 AU
retrograde	4133 Oct 16 07:54	17° 5 24'31		direct	4142 Apr 06 13:38	23° 5 25'57	
opposition	4134 Jan 07 00:49	16° 5 24'20	-9°-38'-8	max. Earth dist.	4142 Jul 14 05:45	24° 5 55'05	46.85069 AU
min. Earth dist.	4134 Jan 07 17:30	16° 5 23'32	46.15137 AU				
direct	4134 Mar 29 13:49	15° 5 24'26		conjunction	4142 Jul 15 11:27	24° 5 56'50	-7°-3'-48
max. Earth dist.	4134 Jul 06 08:03	16° 5 51'53	48.05912 AU	minimum elong	4142 Jul 15 11:36	24° 5 56'50	7°03'49
				retrograde	4142 Oct 25 22:42	26° 5 29'52	
conjunction	4134 Jul 07 02:59	16° 5 52'58	-9°-7'-6	opposition	4143 Jan 16 04:13	25° 5 28'39	-7°-14'00
minimum elong	4134 Jul 07 03:09	16° 5 52'59	9°07'06	min. Earth dist.	4143 Jan 17 07:18	25° 5 27'19	44.78210 AU
retrograde	4134 Oct 17 13:10	18° 5 23'58		direct	4143 Apr 07 15:50	24° 5 27'27	
opposition	4135 Jan 08 06:05	17° 5 23'42	-9°-23'-7				
min. Earth dist.	4135 Jan 08 23:33	17° 5 22'51	46.01690 AU	conjunction	4143 Jul 16 19:12	25° 5 58'41	-6°-47'-16
direct	4135 Mar 30 20:00	16° 5 23'42		minimum elong	4143 Jul 16 19:21	25° 5 58'42	6°47'17
				max. Earth dist.	4143 Jul 15 13:34	25° 5 56'56	46.68439 AU
conjunction	4135 Jul 08 09:44	17° 5 52'31	-8°-52'-30	retrograde	4143 Oct 27 06:15	27° 5 32'02	
minimum elong	4135 Jul 08 09:54	17° 5 52'31	8°52'32	opposition	4144 Jan 17 10:26	26° 5 30'42	-6°-56'-40
max. Earth dist.	4135 Jul 07 13:15	17° 5 51'19	47.92369 AU	min. Earth dist.	4144 Jan 18 13:57	26° 5 29'21	44.61338 AU
retrograde	4135 Oct 18 18:36	19° 5 23'44		direct	4144 Apr 07 22:09	25° 5 29'21	
opposition	4136 Jan 09 11:29	18° 5 23'23	-9°-7'-50	max. Earth dist.	4144 Jul 15 19:45	26° 5 59'07	46.51579 AU
min. Earth dist.	4136 Jan 10 07:14	18° 5 22'26	45.87771 AU				
direct	4136 Mar 31 02:44	17° 5 23'16		conjunction	4144 Jul 17 02:58	27° 5 00'59	-6°-30'-28
				minimum elong	4144 Jul 17 03:07	27° 5 00'59	6°30'31
conjunction	4136 Jul 08 16:39	18° 5 52'21	-8°-37'-41	retrograde	4144 Oct 27 14:12	28° 5 34'40	
minimum elong	4136 Jul 08 16:50	18° 5 52'21	8°37'42	opposition	4145 Jan 17 16:55	27° 5 33'13	-6°-39'-4
max. Earth dist.	4136 Jul 07 19:15	18° 5 51'06	47.78347 AU	min. Earth dist.	4145 Jan 18 21:04	27° 5 31'50	44.44233 AU
retrograde	4136 Oct 19 01:11	20° 5 23'48		direct	4145 Apr 09 04:41	26° 5 31'44	
opposition	4137 Jan 09 16:59	19° 5 23'21	-8°-52'-20	max. Earth dist.	4145 Jul 17 02:43	28° 5 01'51	46.34445 AU
min. Earth dist.	4137 Jan 10 13:03	19° 5 22'23	45.73351 AU				
direct	4137 Apr 01 08:31	18° 5 23'06		conjunction	4145 Jul 18 10:51	28° 5 03'46	-6°-13'-26
				minimum elong	4145 Jul 18 10:59	28° 5 03'47	6°13'27
conjunction	4137 Jul 09 23:24	19° 5 52'27	-8°-22'-38	retrograde	4145 Oct 28 20:21	29° 5 37'50	
minimum elong	4137 Jul 09 23:33	19° 5 52'27	8°22'40	opposition	4146 Jan 18 23:40	28° 5 36'16	-6°-21'-11
max. Earth dist.	4137 Jul 08 23:30	19° 5 51'03	47.63815 AU	min. Earth dist.	4146 Jan 20 05:32	28° 5 34'47	44.26834 AU
retrograde	4137 Oct 20 10:34	21° 5 24'09		direct	4146 Apr 10 13:06	27° 5 34'38	
opposition	4138 Jan 10 22:42	20° 5 23'34	-8°-36'-35	max. Earth dist.	4146 Jul 18 10:16	29° 5 05'08	46.17003 AU
min. Earth dist.	4138 Jan 11 20:45	20° 5 22'30	45.58442 AU				
direct	4138 Apr 02 11:45	19° 5 23'11		conjunction	4146 Jul 19 19:05	29° 5 07'06	-5°-56'-7
max. Earth dist.	4138 Jul 10 06:15	20° 5 51'23	47.48808 AU	minimum elong	4146 Jul 19 19:13	29° 5 07'07	5°56'09
					4146 Aug 27 17:55	0° 0	
conjunction	4138 Jul 11 06:30	20° 5 52'48	-8°-7'-21	retrograde	4146 Oct 30 03:41	0° 0 41'33	
minimum elong	4138 Jul 11 06:40	20° 5 52'49	8°07'23		4147 Jan 03 00:28	30° 0 R 5	
retrograde	4138 Oct 21 17:21	22° 5 24'44		opposition	4147 Jan 20 06:20	29° 5 39'52	-6°-3'-2
opposition	4139 Jan 12 04:21	21° 5 24'02	-8°-20'-35	min. Earth dist.	4147 Jan 21 12:26	29° 5 38'23	44.09088 AU
min. Earth dist.	4139 Jan 13 03:27	21° 5 22'55	45.43077 AU	direct	4147 Apr 11 20:32	28° 5 38'05	
direct	4139 Apr 03 17:33	20° 5 23'28			4147 Jul 13 12:38	0° 0	
max. Earth dist.	4139 Jul 11 11:22	21° 5 51'51	47.33384 AU	max. Earth dist.	4147 Jul 19 16:22	0° 0 08'51	45.99156 AU
conjunction	4139 Jul 12 13:35	21° 5 53'24	-7°-51'-50	conjunction	4147 Jul 21 03:33	0° 0 10'58	-5°-38'-34
minimum elong	4139 Jul 12 13:44	21° 5 53'24	7°51'51	minimum elong	4147 Jul 21 03:41	0° 0 10'59	5°38'35
retrograde	4139 Oct 23 00:36	23° 5 25'34		retrograde	4147 Oct 31 14:16	1° 0 45'50	
opposition	4140 Jan 13 10:06	22° 5 24'44	-8°-4'-20	opposition	4148 Jan 21 13:28	0° 0 44'01	-5°-44'-38
min. Earth dist.	4140 Jan 14 09:56	22° 5 23'35	45.27325 AU	min. Earth dist.	4148 Jan 22 21:44	0° 0 42'24	43.90913 AU
direct	4140 Apr 03 23:05	21° 5 24'01			4148 Mar 02 12:20	30° 0 R 5	
				direct	4148 Apr 12 01:16	29° 5 42'03	
conjunction	4140 Jul 12 20:50	22° 5 54'14	-7°-36'-4		4148 May 22 04:04	0° 0	
minimum elong	4140 Jul 12 20:59	22° 5 54'15	7°36'05	max. Earth dist.	4148 Jul 20 00:41	1° 0 13'13	45.80847 AU
max. Earth dist.	4140 Jul 11 17:27	22° 5 52'38	47.17572 AU				
retrograde	4140 Oct 23 04:56	24° 5 26'41		conjunction	4148 Jul 21 12:21	1° 0 15'23	-5°-20'-46
opposition	4141 Jan 13 16:00	23° 5 25'43	-7°-47'-50	minimum elong	4148 Jul 21 12:28	1° 0 15'23	5°20'47
min. Earth dist.	4141 Jan 14 17:36	23° 5 24'28	45.11223 AU	retrograde	4148 Nov 01 00:40	2° 0 50'37	

opposition	4149 Jan 21 20:39	1°048'38	-5°-25'-57	max. Earth dist.	4157 Jul 30 04:26	11°012'30	43.99171 AU
min. Earth dist.	4149 Jan 23 05:49	1°046'59	43.72256 AU				
direct	4149 Apr 13 06:51	0°046'29		conjunction	4157 Aug 01 03:30	11°015'28	-2°-29'-8
max. Earth dist.	4149 Jul 21 07:09	2°017'57	45.62066 AU	minimum elong	4157 Aug 01 03:34	11°015'28	2°29'10
				retrograde	4157 Nov 11 14:15	12°054'43	
conjunction	4149 Jul 22 21:11	2°020'15	-5°-2'-43	opposition	4158 Jan 31 22:15	11°050'57	-2°-25'-34
minimum elong	4149 Jul 22 21:18	2°020'16	5°02'44	min. Earth dist.	4158 Feb 02 16:46	11°048'45	41.88511 AU
retrograde	4149 Nov 02 12:03	3°055'52		direct	4158 Apr 23 08:28	10°046'40	
opposition	4150 Jan 23 04:04	2°053'43	-5°-7'-1	max. Earth dist.	4158 Jul 31 15:24	12°022'06	43.77700 AU
min. Earth dist.	4150 Jan 24 14:22	2°052'00	43.53143 AU				
direct	4150 Apr 14 12:24	1°051'21		conjunction	4158 Aug 02 14:29	12°025'04	-2°-8'-45
max. Earth dist.	4150 Jul 22 15:00	3°023'10	45.42818 AU	minimum elong	4158 Aug 02 14:32	12°025'05	2°08'46
				retrograde	4158 Nov 13 01:53	14°004'54	
conjunction	4150 Jul 24 06:14	3°025'33	-4°-44'-25	opposition	4159 Feb 02 07:35	13°000'57	-2°-4'-8
minimum elong	4150 Jul 24 06:20	3°025'34	4°44'27	min. Earth dist.	4159 Feb 04 02:29	12°058'43	41.66828 AU
retrograde	4150 Nov 03 18:20	5°001'33		direct	4159 Apr 24 16:32	11°056'26	
opposition	4151 Jan 24 11:43	3°059'13	-4°-47'-49	max. Earth dist.	4159 Aug 02 00:17	13°032'21	43.55895 AU
min. Earth dist.	4151 Jan 25 23:52	3°057'24	43.33581 AU				
direct	4151 Apr 15 22:20	2°056'37		conjunction	4159 Aug 04 01:48	13°035'29	-1°-48'-8
max. Earth dist.	4151 Jul 23 23:26	4°028'49	45.23159 AU	minimum elong	4159 Aug 04 01:51	13°035'30	1°48'09
					4159 Oct 08 14:09	15°0	
conjunction	4151 Jul 25 15:34	4°031'16	-4°-25'-53	retrograde	4159 Nov 14 16:26	15°015'54	
minimum elong	4151 Jul 25 15:40	4°031'16	4°25'54		4159 Dec 21 21:41	15°0	
retrograde	4151 Nov 05 00:57	6°007'40		opposition	4160 Feb 03 17:11	14°011'45	-1°-42'-24
opposition	4152 Jan 25 19:16	5°005'07	-4°-28'-20	min. Earth dist.	4160 Feb 05 13:41	14°009'26	41.44798 AU
min. Earth dist.	4152 Jan 27 07:43	5°003'16	43.13637 AU	direct	4160 Apr 24 22:42	13°007'00	
direct	4152 Apr 16 08:24	4°002'16		max. Earth dist.	4160 Aug 02 11:15	14°043'30	43.33696 AU
max. Earth dist.	4152 Jul 24 06:43	5°034'47	45.03127 AU				
				conjunction	4160 Aug 04 13:36	14°046'43	-1°-27'-14
conjunction	4152 Jul 26 01:01	5°037'23	-4°-7'-4	minimum elong	4160 Aug 04 13:38	14°046'43	1°27'15
minimum elong	4152 Jul 26 01:07	5°037'23	4°07'06		4160 Aug 13 05:51	15°0	
retrograde	4152 Nov 05 10:57	7°014'12		retrograde	4160 Nov 15 04:06	16°027'44	
opposition	4153 Jan 26 03:17	6°011'26	-4°-8'-35	opposition	4161 Feb 04 03:16	15°023'21	-1°-20'-24
min. Earth dist.	4153 Jan 27 17:41	6°009'29	42.93366 AU	min. Earth dist.	4161 Feb 06 01:08	15°020'57	41.22360 AU
direct	4153 Apr 17 14:49	5°008'20			4161 Feb 23 03:15	15°0	
max. Earth dist.	4153 Jul 25 16:22	6°041'19	44.82790 AU	direct	4161 Apr 26 09:04	14°018'20	
					4161 Jun 26 10:46	15°0	
conjunction	4153 Jul 27 10:35	6°043'55	-3°-48'-1	max. Earth dist.	4161 Aug 03 21:39	15°055'24	43.11100 AU
minimum elong	4153 Jul 27 10:41	6°043'56	3°48'02				
retrograde	4153 Nov 06 20:14	8°021'10		conjunction	4161 Aug 06 01:23	15°058'43	-1°-6'-6
opposition	4154 Jan 27 11:25	7°018'12	-3°-48'-33	minimum elong	4161 Aug 06 01:24	15°058'43	1°06'08
min. Earth dist.	4154 Jan 29 01:58	7°016'14	42.72814 AU	retrograde	4161 Nov 16 15:37	17°040'20	
direct	4154 Apr 18 22:50	6°014'51		opposition	4162 Feb 05 13:30	16°035'43	0°-58'-8
max. Earth dist.	4154 Jul 27 00:20	7°048'13	44.62203 AU	min. Earth dist.	4162 Feb 07 11:56	16°033'17	40.99534 AU
				direct	4162 Apr 27 21:20	15°030'25	
conjunction	4154 Jul 28 20:23	7°050'56	-3°-28'-41	max. Earth dist.	4162 Aug 05 07:56	17°008'00	42.88101 AU
minimum elong	4154 Jul 28 20:28	7°050'56	3°28'42				
retrograde	4154 Nov 08 08:40	9°028'38		conjunction	4162 Aug 07 13:40	17°011'29	0°-44'-43
opposition	4155 Jan 28 19:41	8°025'27	-3°-28'-14	minimum elong	4162 Aug 07 13:41	17°011'29	0°44'44
min. Earth dist.	4155 Jan 30 11:12	8°023'26	42.52048 AU	retrograde	4162 Nov 18 02:32	18°053'42	
direct	4155 Apr 20 05:04	7°021'51		opposition	4163 Feb 07 00:02	17°048'50	0°-35'-35
max. Earth dist.	4155 Jul 28 09:57	8°055'42	44.41392 AU	min. Earth dist.	4163 Feb 09 00:37	17°046'16	40.76339 AU
				direct	4163 Apr 29 08:20	16°043'13	
conjunction	4155 Jul 30 06:35	8°058'29	-3°-9'-6	max. Earth dist.	4163 Aug 06 20:14	18°021'27	42.64761 AU
minimum elong	4155 Jul 30 06:40	8°058'29	3°09'08				
retrograde	4155 Nov 09 18:31	10°036'40		conjunction	4163 Aug 09 02:19	18°024'58	0°-23'-6
opposition	4156 Jan 30 04:22	9°033'16	-3°-7'-38	minimum elong	4163 Aug 09 02:19	18°024'58	0°23'07
min. Earth dist.	4156 Jan 31 21:06	9°031'11	42.31069 AU	retrograde	4163 Nov 19 13:46	20°007'49	
direct	4156 Apr 20 14:43	8°029'26		opposition	4164 Feb 08 10:48	19°002'41	0°-12'-45
max. Earth dist.	4156 Jul 28 19:32	10°003'47	44.20390 AU	min. Earth dist.	4164 Feb 10 11:27	19°000'05	40.52827 AU
				direct	4164 Apr 29 19:23	17°056'45	
conjunction	4156 Jul 30 16:54	10°006'38	-2°-49'-15	max. Earth dist.	4164 Aug 07 06:49	19°035'31	42.41121 AU
minimum elong	4156 Jul 30 16:58	10°006'38	2°49'16				
retrograde	4156 Nov 10 04:05	11°045'19		conjunction	4164 Aug 09 15:01	19°039'11	0°-1'-14
opposition	4157 Jan 30 13:05	10°041'44	-2°-46'-45	minimum elong	4164 Aug 09 15:01	19°039'11	0°01'15
min. Earth dist.	4157 Feb 01 05:44	10°039'39	42.09901 AU	behind sun begin	4164 Aug 09 08:30	19°038'47	
direct	4157 Apr 22 00:19	9°037'41		behind sun end	4164 Aug 09 21:32	19°039'35	

asc. node	4164 Aug 29 16:29	20°♏10'15		minimum elong	4172 Aug 20 10:55	0°♐04'27	3°02'17
retrograde	4164 Nov 20 04:25	21°♏22'41		retrograde	4172 Dec 01 05:46	1°♐54'03	
opposition	4165 Feb 08 21:54	20°♏17'16	0°10'19	opposition	4173 Feb 19 03:52	0°♐46'18	3°24'17
min. Earth dist.	4165 Feb 11 00:06	20°♏14'35	40.29068 AU	min. Earth dist.	4173 Feb 21 12:35	0°♐43'08	38.34196 AU
direct	4165 May 01 03:32	19°♏11'00			4173 Mar 29 02:12	30°♐♌	
max. Earth dist.	4165 Aug 08 19:56	20°♏50'28	42.17249 AU	direct	4173 May 11 04:28	29°♏37'21	
					4173 Jun 22 20:27	0°♐	
conjunction	4165 Aug 11 04:12	20°♏54'10	0°20'57	max. Earth dist.	4173 Aug 19 11:42	1°♐22'56	40.21394 AU
minimum elong	4165 Aug 11 04:12	20°♏54'10	0°20'57				
retrograde	4165 Nov 21 18:54	22°♏38'20		conjunction	4173 Aug 22 03:33	1°♐27'23	3°26'11
opposition	4166 Feb 10 09:18	21°♏32'36	0°33'41	minimum elong	4173 Aug 22 03:26	1°♐27'22	3°26'11
min. Earth dist.	4166 Feb 12 12:10	21°♏29'52	40.05115 AU	retrograde	4173 Dec 02 22:32	3°♐17'50	
direct	4166 May 02 13:58	20°♏26'00		opposition	4174 Feb 20 18:27	2°♐09'46	3°49'36
max. Earth dist.	4166 Aug 10 08:00	22°♏06'06	41.93220 AU	min. Earth dist.	4174 Feb 23 03:18	2°♐06'34	38.09010 AU
				direct	4174 May 12 20:01	1°♐00'26	
conjunction	4166 Aug 12 17:32	22°♏09'55	0°43'18	max. Earth dist.	4174 Aug 21 02:40	2°♐46'48	39.95986 AU
minimum elong	4166 Aug 12 17:31	22°♏09'55	0°43'19				
retrograde	4166 Nov 23 10:38	23°♏54'46		conjunction	4174 Aug 23 20:33	2°♐51'25	3°50'16
opposition	4167 Feb 11 21:01	22°♏48'44	0°57'18	minimum elong	4174 Aug 23 20:26	2°♐51'25	3°50'15
min. Earth dist.	4167 Feb 14 00:08	22°♏45'59	39.81038 AU	retrograde	4174 Dec 04 14:34	4°♐42'45	
direct	4167 May 04 00:37	21°♏41'48		opposition	4175 Feb 22 09:40	3°♐34'21	4°15'07
max. Earth dist.	4167 Aug 11 20:54	23°♏22'36	41.69057 AU	min. Earth dist.	4175 Feb 24 20:28	3°♐31'02	37.83584 AU
				direct	4175 May 14 10:45	2°♐24'37	
conjunction	4167 Aug 14 07:27	23°♏26'30	1°05'55	max. Earth dist.	4175 Aug 22 20:18	4°♐11'56	39.70355 AU
minimum elong	4167 Aug 14 07:25	23°♏26'30	1°05'55				
retrograde	4167 Nov 24 22:43	25°♏12'03		conjunction	4175 Aug 25 14:09	4°♐16'36	4°14'31
opposition	4168 Feb 13 09:09	24°♏05'45	1°21'11	minimum elong	4175 Aug 25 14:01	4°♐16'35	4°14'32
min. Earth dist.	4168 Feb 15 13:41	24°♏02'54	39.56861 AU	retrograde	4175 Dec 06 06:35	6°♐08'49	
direct	4168 May 04 14:24	22°♏58'29		opposition	4176 Feb 24 01:08	5°♐00'04	4°40'50
max. Earth dist.	4168 Aug 12 11:13	24°♏40'04	41.44820 AU	min. Earth dist.	4176 Feb 26 12:02	4°♐56'43	37.57965 AU
				direct	4176 May 15 01:55	3°♐49'56	
conjunction	4168 Aug 14 21:42	24°♏43'59	1°28'45	max. Earth dist.	4176 Aug 23 12:11	5°♐38'04	39.44553 AU
minimum elong	4168 Aug 14 21:39	24°♏43'59	1°28'45				
retrograde	4168 Nov 25 11:18	26°♏30'17		conjunction	4176 Aug 26 08:02	5°♐42'54	4°38'57
opposition	4169 Feb 13 21:38	25°♏23'42	1°45'20	minimum elong	4176 Aug 26 07:54	5°♐42'54	4°38'56
min. Earth dist.	4169 Feb 16 01:47	25°♏20'51	39.32617 AU	retrograde	4176 Dec 07 02:00	7°♐36'04	
direct	4169 May 06 04:15	24°♏16'06		opposition	4177 Feb 24 17:13	6°♐26'57	5°06'43
max. Earth dist.	4169 Aug 13 23:50	25°♏58'23	41.20494 AU	min. Earth dist.	4177 Feb 27 05:20	6°♐23'31	37.32231 AU
				direct	4177 May 16 14:54	5°♐16'24	
conjunction	4169 Aug 16 12:08	26°♏02'28	1°51'49	max. Earth dist.	4177 Aug 25 06:33	7°♐05'32	39.18641 AU
minimum elong	4169 Aug 16 12:05	26°♏02'28	1°51'48				
retrograde	4169 Nov 27 02:32	27°♏49'33		conjunction	4177 Aug 28 02:23	7°♐10'24	5°03'31
opposition	4170 Feb 15 10:36	26°♏42'41	2°09'43	minimum elong	4177 Aug 28 02:14	7°♐10'23	5°03'31
min. Earth dist.	4170 Feb 17 16:21	26°♏39'44	39.08288 AU	retrograde	4177 Dec 08 20:52	9°♐04'32	
direct	4170 May 07 14:20	25°♏34'46		opposition	4178 Feb 26 09:48	7°♐55'02	5°32'47
max. Earth dist.	4170 Aug 15 15:12	27°♏17'54	40.96047 AU	min. Earth dist.	4178 Feb 28 22:30	7°♐51'32	37.06425 AU
				direct	4178 May 18 07:13	6°♐44'03	
conjunction	4170 Aug 18 03:20	27°♏22'00	2°15'06	max. Earth dist.	4178 Aug 27 00:34	8°♐34'10	38.92698 AU
minimum elong	4170 Aug 18 03:16	27°♏22'00	2°15'05				
retrograde	4170 Nov 28 17:28	29°♏09'54		conjunction	4178 Aug 29 21:15	8°♐39'08	5°28'12
opposition	4171 Feb 16 23:48	28°♏02'46	2°34'20	minimum elong	4178 Aug 29 21:05	8°♐39'08	5°28'12
min. Earth dist.	4171 Feb 19 05:56	27°♏59'47	38.83809 AU	retrograde	4178 Dec 10 18:45	10°♐34'15	
direct	4171 May 09 03:00	26°♏54'31		opposition	4179 Feb 28 02:40	9°♐24'22	5°58'59
max. Earth dist.	4171 Aug 17 04:57	28°♏38'25	40.71419 AU	min. Earth dist.	4179 Mar 02 15:22	9°♐20'52	36.80634 AU
				direct	4179 May 20 00:18	8°♐12'59	
conjunction	4171 Aug 19 18:55	28°♏42'39	2°38'35	max. Earth dist.	4179 Aug 28 19:17	10°♐04'07	38.66764 AU
minimum elong	4171 Aug 19 18:51	28°♏42'39	2°38'35				
	4171 Oct 10 19:20	0°♐		conjunction	4179 Aug 31 16:48	10°♐09'11	5°53'00
retrograde	4171 Nov 30 12:26	0°♐31'24		minimum elong	4179 Aug 31 16:36	10°♐09'10	5°53'01
	4172 Jan 20 22:07	30°♐♌		retrograde	4179 Dec 12 14:55	12°♐05'19	
opposition	4172 Feb 18 13:33	29°♏23'58	2°59'12	opposition	4180 Feb 29 20:24	10°♐55'05	6°25'18
min. Earth dist.	4172 Feb 20 20:42	29°♏20'55	38.59134 AU	min. Earth dist.	4180 Mar 03 10:22	10°♐51'29	36.54895 AU
direct	4172 May 09 14:23	28°♏15'23		direct	4180 May 20 17:40	9°♐43'17	
	4172 Aug 17 18:29	0°♐		max. Earth dist.	4180 Aug 29 15:33	11°♐35'32	38.40908 AU
max. Earth dist.	4172 Aug 17 20:06	0°♐00'07	40.46533 AU				
				conjunction	4180 Sep 01 12:42	11°♐40'38	6°17'53
conjunction	4172 Aug 20 11:01	0°♐04'27	3°02'17	minimum elong	4180 Sep 01 12:30	11°♐40'37	6°17'53

retrograde	4180 Dec 13 09:56	13° \mathring{M} 37'49		direct	4189 Jun 04 03:44	24° \mathring{M} 27'32	
opposition	4181 Mar 02 14:31	12° \mathring{M} 27'14	6°51'43	max. Earth dist.	4189 Sep 14 03:53	26° \mathring{M} 30'33	36.09062 AU
min. Earth dist.	4181 Mar 05 03:46	12° \mathring{M} 23'39	36.29252 AU				
direct	4181 May 22 12:28	11° \mathring{M} 15'02		conjunction	4189 Sep 17 06:22	26° \mathring{M} 36'31	10°01'56
max. Earth dist.	4181 Aug 31 10:34	13° \mathring{M} 08'19	38.15139 AU	minimum elong	4189 Sep 17 06:02	26° \mathring{M} 36'30	10°01'56
				retrograde	4189 Dec 29 08:38	28° \mathring{M} 44'23	
conjunction	4181 Sep 03 09:14	13° \mathring{M} 13'35	6°42'50	opposition	4190 Mar 17 15:02	27° \mathring{M} 30'15	10°49'55
minimum elong	4181 Sep 03 09:01	13° \mathring{M} 13'34	6°42'50	min. Earth dist.	4190 Mar 20 09:29	27° \mathring{M} 26'07	33.99557 AU
retrograde	4181 Dec 15 06:29	15° \mathring{M} 11'53		direct	4190 Jun 06 03:24	26° \mathring{M} 13'57	
opposition	4182 Mar 04 09:16	14° \mathring{M} 00'57	7°18'13	max. Earth dist.	4190 Sep 16 05:34	28° \mathring{M} 18'12	35.83544 AU
min. Earth dist.	4182 Mar 06 23:48	13° \mathring{M} 57'16	36.03711 AU				
direct	4182 May 24 04:35	12° \mathring{M} 48'21		conjunction	4190 Sep 19 08:58	28° \mathring{M} 24'19	10°26'17
max. Earth dist.	4182 Sep 02 08:33	14° \mathring{M} 42'52	37.89442 AU	minimum elong	4190 Sep 19 08:39	28° \mathring{M} 24'17	10°26'17
					4190 Nov 13 11:43	0° \mathring{A}	
conjunction	4182 Sep 05 06:33	14° \mathring{M} 48'07	7°07'49	retrograde	4190 Dec 31 12:13	0° \mathring{A} 33'27	
minimum elong	4182 Sep 05 06:19	14° \mathring{M} 48'06	7°07'49		4191 Feb 18 14:54	30° \mathring{R} \mathring{M}	
retrograde	4182 Dec 17 03:17	16° \mathring{M} 47'34		opposition	4191 Mar 19 15:50	29° \mathring{M} 18'51	11°15'49
opposition	4183 Mar 06 04:39	15° \mathring{M} 36'18	7°44'45	min. Earth dist.	4191 Mar 22 10:22	29° \mathring{M} 14'42	33.74440 AU
min. Earth dist.	4183 Mar 08 19:09	15° \mathring{M} 32'35	35.78216 AU	direct	4191 Jun 08 02:01	28° \mathring{M} 02'02	
direct	4183 May 25 22:00	14° \mathring{M} 23'17			4191 Sep 14 10:52	0° \mathring{A}	
max. Earth dist.	4183 Sep 04 04:51	16° \mathring{M} 18'54	37.63759 AU	max. Earth dist.	4191 Sep 18 09:36	0° \mathring{A} 07'43	35.58277 AU
conjunction	4183 Sep 07 04:25	16° \mathring{M} 24'20	7°32'50	conjunction	4191 Sep 21 12:26	0° \mathring{A} 13'50	10°50'22
minimum elong	4183 Sep 07 04:11	16° \mathring{M} 24'18	7°32'50	minimum elong	4191 Sep 21 12:05	0° \mathring{A} 13'48	10°50'22
retrograde	4183 Dec 19 03:21	18° \mathring{M} 24'56		retrograde	4192 Jan 02 15:25	2° \mathring{A} 24'16	
opposition	4184 Mar 07 00:36	17° \mathring{M} 13'19	8°11'20	opposition	4192 Mar 20 17:30	1° \mathring{A} 09'14	11°41'25
min. Earth dist.	4184 Mar 09 15:59	17° \mathring{M} 09'32	35.52731 AU	min. Earth dist.	4192 Mar 23 12:21	1° \mathring{A} 05'01	33.49622 AU
direct	4184 May 26 15:10	15° \mathring{M} 59'54			4192 May 16 11:39	30° \mathring{R} \mathring{M}	
max. Earth dist.	4184 Sep 05 03:18	17° \mathring{M} 56'44	37.38036 AU	direct	4192 Jun 09 02:19	29° \mathring{M} 51'55	
					4192 Jul 02 15:29	0° \mathring{A}	
conjunction	4184 Sep 08 03:10	18° \mathring{M} 02'14	7°57'50	max. Earth dist.	4192 Sep 19 13:50	1° \mathring{A} 59'00	35.33362 AU
minimum elong	4184 Sep 08 02:55	18° \mathring{M} 02'12	7°57'50				
retrograde	4184 Dec 20 03:22	20° \mathring{M} 04'01		conjunction	4192 Sep 22 16:28	2° \mathring{A} 05'09	11°14'07
opposition	4185 Mar 08 21:26	18° \mathring{M} 52'01	8°37'55	minimum elong	4192 Sep 22 16:08	2° \mathring{A} 05'08	11°14'07
min. Earth dist.	4185 Mar 11 13:49	18° \mathring{M} 48'10	35.27200 AU	retrograde	4193 Jan 03 21:46	4° \mathring{A} 16'56	
direct	4185 May 28 11:31	17° \mathring{M} 38'10		opposition	4193 Mar 22 19:50	3° \mathring{A} 01'28	12°06'40
max. Earth dist.	4185 Sep 07 01:40	19° \mathring{M} 36'12	37.12267 AU	min. Earth dist.	4193 Mar 25 13:35	2° \mathring{A} 57'18	33.25189 AU
				direct	4193 Jun 11 04:04	1° \mathring{A} 43'40	
conjunction	4185 Sep 10 02:18	19° \mathring{M} 41'48	8°22'49	max. Earth dist.	4193 Sep 21 18:32	3° \mathring{A} 52'11	35.08828 AU
minimum elong	4185 Sep 10 02:01	19° \mathring{M} 41'47	8°22'50				
retrograde	4185 Dec 22 05:34	21° \mathring{M} 44'47		conjunction	4193 Sep 24 21:16	3° \mathring{A} 58'24	11°37'30
opposition	4186 Mar 10 18:47	20° \mathring{M} 32'23	9°04'30	minimum elong	4193 Sep 24 20:54	3° \mathring{A} 58'22	11°37'30
min. Earth dist.	4186 Mar 13 11:05	20° \mathring{M} 28'31	35.01626 AU	retrograde	4194 Jan 06 04:01	6° \mathring{A} 11'33	
direct	4186 May 30 09:01	19° \mathring{M} 18'05		opposition	4194 Mar 24 23:07	4° \mathring{A} 55'40	12°31'30
max. Earth dist.	4186 Sep 09 00:28	21° \mathring{M} 17'17	36.86431 AU	min. Earth dist.	4194 Mar 27 17:33	4° \mathring{A} 51'26	33.01151 AU
				direct	4194 Jun 13 06:28	3° \mathring{A} 37'26	
conjunction	4186 Sep 12 02:23	21° \mathring{M} 23'02	8°47'46	max. Earth dist.	4194 Sep 24 01:28	5° \mathring{A} 47'30	34.84699 AU
minimum elong	4186 Sep 12 02:06	21° \mathring{M} 23'01	8°47'45				
retrograde	4186 Dec 24 05:40	23° \mathring{M} 27'13		conjunction	4194 Sep 27 03:01	5° \mathring{A} 53'42	12°00'26
opposition	4187 Mar 12 16:50	22° \mathring{M} 14'24	9°31'01	minimum elong	4194 Sep 27 02:40	5° \mathring{A} 53'40	12°00'26
min. Earth dist.	4187 Mar 15 10:47	22° \mathring{M} 10'24	34.76016 AU	retrograde	4195 Jan 08 11:52	8° \mathring{A} 08'13	
direct	4187 Jun 01 06:28	20° \mathring{M} 59'37		opposition	4195 Mar 27 02:59	6° \mathring{A} 51'58	12°55'52
max. Earth dist.	4187 Sep 11 01:27	23° \mathring{M} 00'06	36.60585 AU	min. Earth dist.	4195 Mar 29 20:16	6° \mathring{A} 47'46	32.77505 AU
				direct	4195 Jun 15 11:04	5° \mathring{A} 33'18	
conjunction	4187 Sep 14 03:08	23° \mathring{M} 05'54	9°12'37	max. Earth dist.	4195 Sep 26 07:13	7° \mathring{A} 44'47	34.60935 AU
minimum elong	4187 Sep 14 02:50	23° \mathring{M} 05'53	9°12'37				
retrograde	4187 Dec 26 06:27	25° \mathring{M} 11'17		conjunction	4195 Sep 29 09:33	7° \mathring{A} 51'06	12°22'53
opposition	4188 Mar 13 15:33	23° \mathring{M} 58'03	9°57'28	minimum elong	4195 Sep 29 09:10	7° \mathring{A} 51'05	12°22'53
min. Earth dist.	4188 Mar 16 09:06	23° \mathring{M} 54'02	34.50423 AU	retrograde	4196 Jan 10 19:06	10° \mathring{A} 07'04	
direct	4188 Jun 02 06:32	22° \mathring{M} 42'46		opposition	4196 Mar 28 07:55	8° \mathring{A} 50'26	13°19'42
max. Earth dist.	4188 Sep 12 01:02	24° \mathring{M} 44'25	36.34769 AU	min. Earth dist.	4196 Mar 31 02:00	8° \mathring{A} 46'09	32.54223 AU
				direct	4196 Jun 16 13:25	7° \mathring{A} 31'19	
conjunction	4188 Sep 15 04:18	24° \mathring{M} 50'24	9°37'21	max. Earth dist.	4196 Sep 27 15:54	9° \mathring{A} 44'25	34.37512 AU
minimum elong	4188 Sep 15 04:00	24° \mathring{M} 50'22	9°37'21				
retrograde	4188 Dec 27 08:13	26° \mathring{M} 57'00		conjunction	4196 Sep 30 16:51	9° \mathring{A} 50'41	12°44'48
opposition	4189 Mar 15 15:00	25° \mathring{M} 43'19	10°23'47	minimum elong	4196 Sep 30 16:30	9° \mathring{A} 50'39	12°44'49
min. Earth dist.	4189 Mar 18 09:41	25° \mathring{M} 39'12	34.24915 AU	retrograde	4197 Jan 12 01:51	12° \mathring{A} 08'04	

opposition	4197 Mar 30 13:44	10° 2 51'03	13°42'58	max. Earth dist.	4205 Oct 19 05:31	29° 2 13'29	32.46046 AU
min. Earth dist.	4197 Apr 02 07:05	10° 2 46'48	32.31261 AU				
direct	4197 Jun 18 18:35	9° 2 31'31		conjunction	4205 Oct 21 22:52	29° 2 19'35	15°27'21
max. Earth dist.	4197 Sep 29 23:08	11° 2 46'01	34.14413 AU	minimum elong	4205 Oct 21 22:33	29° 2 19'33	15°27'21
					4205 Nov 09 03:57	0° 0	
conjunction	4197 Oct 03 00:59	11° 2 52'26	13°06'09	retrograde	4206 Feb 02 14:47	1° 0 49'07	
minimum elong	4197 Oct 03 00:36	11° 2 52'24	13°06'09	opposition	4206 Apr 20 07:59	0° 0 28'33	16°34'20
retrograde	4198 Jan 14 11:23	14° 2 11'14		min. Earth dist.	4206 Apr 22 18:51	0° 0 24'31	30.44805 AU
opposition	4198 Apr 01 20:13	12° 2 53'50	14°05'36		4206 May 08 00:47	30° 0 0	
min. Earth dist.	4198 Apr 04 13:40	12° 2 49'33	32.08630 AU	direct	4206 Jul 09 05:22	29° 2 05'03	
direct	4198 Jun 20 21:57	11° 2 33'50			4206 Sep 06 20:24	0° 0	
max. Earth dist.	4198 Oct 02 09:24	13° 2 49'56	33.91635 AU	max. Earth dist.	4206 Oct 21 21:12	1° 0 33'07	32.28130 AU
conjunction	4198 Oct 05 10:11	13° 2 56'19	13°26'50	conjunction	4206 Oct 24 13:56	1° 0 39'13	15°40'04
minimum elong	4198 Oct 05 09:50	13° 2 56'17	13°26'50	minimum elong	4206 Oct 24 13:40	1° 0 39'12	15°40'04
retrograde	4199 Jan 16 19:51	16° 2 16'32		retrograde	4207 Feb 05 07:44	4° 0 10'01	
opposition	4199 Apr 04 03:51	14° 2 58'44	14°27'32	opposition	4207 Apr 22 22:13	2° 0 49'08	16°47'29
min. Earth dist.	4199 Apr 06 21:17	14° 2 54'25	31.86321 AU	min. Earth dist.	4207 Apr 25 07:37	2° 0 45'11	30.27525 AU
direct	4199 Jun 23 03:19	13° 2 38'16		direct	4207 Jul 11 17:12	1° 0 25'18	
max. Earth dist.	4199 Oct 04 19:05	15° 2 55'50	33.69219 AU	max. Earth dist.	4207 Oct 24 15:46	3° 0 54'55	32.11052 AU
conjunction	4199 Oct 07 19:58	16° 2 02'17	13°46'49	conjunction	4207 Oct 27 05:47	4° 0 00'49	15°51'25
minimum elong	4199 Oct 07 19:35	16° 2 02'15	13°46'50	minimum elong	4207 Oct 27 05:31	4° 0 00'47	15°51'26
retrograde	4200 Jan 19 07:13	18° 2 23'54		retrograde	4208 Feb 07 22:30	6° 0 32'49	
opposition	4200 Apr 06 12:08	17° 2 05'41	14°48'42	opposition	4208 Apr 24 13:25	5° 0 11'40	16°59'10
min. Earth dist.	4200 Apr 09 04:44	17° 2 01'24	31.64399 AU	min. Earth dist.	4208 Apr 26 21:43	5° 0 07'46	30.11046 AU
direct	4200 Jun 25 11:34	15° 2 44'46		direct	4208 Jul 13 06:36	3° 0 47'33	
max. Earth dist.	4200 Oct 07 06:28	18° 2 03'52	33.47206 AU	max. Earth dist.	4208 Oct 26 09:20	6° 0 18'29	31.94806 AU
conjunction	4200 Oct 10 06:41	18° 2 10'19	14°06'02	conjunction	4208 Oct 28 22:14	6° 0 24'20	16°01'20
minimum elong	4200 Oct 10 06:20	18° 2 10'17	14°06'02	minimum elong	4208 Oct 28 22:01	6° 0 24'18	16°01'21
retrograde	4201 Jan 21 17:56	20° 2 33'18		retrograde	4209 Feb 09 15:56	8° 0 57'29	
opposition	4201 Apr 08 21:26	19° 2 14'39	15°09'00	opposition	4209 Apr 27 05:14	7° 0 36'04	17°09'17
min. Earth dist.	4201 Apr 11 14:21	19° 2 10'20	31.42912 AU	min. Earth dist.	4209 Apr 29 11:31	7° 0 32'18	29.95370 AU
direct	4201 Jun 27 19:56	17° 2 53'16		direct	4209 Jul 15 21:47	6° 0 11'40	
max. Earth dist.	4201 Oct 09 18:46	20° 2 13'53	33.25688 AU	max. Earth dist.	4209 Oct 29 04:46	8° 0 44'00	31.79352 AU
conjunction	4201 Oct 12 17:58	20° 2 20'19	14°24'22	conjunction	4209 Oct 31 15:31	8° 0 49'40	16°09'47
minimum elong	4201 Oct 12 17:35	20° 2 20'17	14°24'22	minimum elong	4209 Oct 31 15:18	8° 0 49'39	16°09'48
retrograde	4202 Jan 24 06:56	22° 2 44'39		retrograde	4210 Feb 12 08:42	11° 0 23'56	
opposition	4202 Apr 11 07:24	21° 2 25'36	15°28'21	opposition	4210 Apr 29 22:03	10° 0 02'15	17°17'48
min. Earth dist.	4202 Apr 13 22:38	21° 2 21'22	31.21938 AU	min. Earth dist.	4210 May 02 03:48	9° 0 58'31	29.80451 AU
direct	4202 Jun 30 06:33	20° 2 03'45		direct	4210 Jul 18 12:44	8° 0 37'35	
max. Earth dist.	4202 Oct 12 07:19	22° 2 25'49	33.04713 AU	max. Earth dist.	4210 Nov 01 00:13	11° 0 11'11	31.64697 AU
conjunction	4202 Oct 15 06:09	22° 2 32'16	14°41'46	conjunction	4210 Nov 03 09:22	11° 0 16'44	16°16'42
minimum elong	4202 Oct 15 05:49	22° 2 32'14	14°41'46	minimum elong	4210 Nov 03 09:12	11° 0 16'43	16°16'41
retrograde	4203 Jan 26 20:10	24° 2 57'56		retrograde	4211 Feb 15 03:44	13° 0 52'01	
opposition	4203 Apr 13 18:15	23° 2 38'28	15°46'40	opposition	4211 May 02 15:25	12° 0 30'06	17°24'39
min. Earth dist.	4203 Apr 16 09:38	23° 2 34'11	31.01556 AU	min. Earth dist.	4211 May 04 18:38	12° 0 26'31	29.66304 AU
direct	4203 Jul 02 16:24	22° 2 16'10		direct	4211 Jul 21 06:17	11° 0 05'10	
max. Earth dist.	4203 Oct 14 22:26	24° 2 39'50	32.84395 AU	max. Earth dist.	4211 Nov 03 20:22	13° 0 39'56	31.50837 AU
conjunction	4203 Oct 17 19:03	24° 2 46'08	14°58'07	conjunction	4211 Nov 06 03:53	13° 0 45'22	16°22'01
minimum elong	4203 Oct 17 18:42	24° 2 46'06	14°58'07	minimum elong	4211 Nov 06 03:43	13° 0 45'21	16°22'02
retrograde	4204 Jan 29 10:50	27° 2 13'07			4211 Dec 09 05:58	15° 0	
opposition	4204 Apr 15 06:01	25° 2 53'14	16°03'50	retrograde	4212 Feb 17 22:07	16° 0 21'36	
min. Earth dist.	4204 Apr 17 19:21	25° 2 49'05	30.81855 AU	opposition	4212 May 04 09:44	14° 0 59'26	17°29'45
direct	4204 Jul 04 05:29	24° 2 30'30			4212 May 04 01:40	15° 0 00	
max. Earth dist.	4204 Oct 16 12:23	26° 2 55'35	32.64812 AU	min. Earth dist.	4212 May 06 12:17	14° 0 55'54	29.52947 AU
				direct	4212 Jul 22 23:45	13° 0 34'16	
conjunction	4204 Oct 19 08:27	27° 2 01'54	15°13'21		4212 Oct 05 14:45	15° 0	
minimum elong	4204 Oct 19 08:08	27° 2 01'52	15°13'20	max. Earth dist.	4212 Nov 05 17:42	16° 0 10'13	31.37825 AU
retrograde	4205 Jan 31 00:39	29° 2 30'11					
opposition	4205 Apr 17 18:39	28° 2 09'56	16°19'45	conjunction	4212 Nov 07 22:40	16° 0 15'25	16°25'41
min. Earth dist.	4205 Apr 20 07:18	28° 2 05'47	30.62926 AU	minimum elong	4212 Nov 07 22:34	16° 0 15'24	16°25'41
direct	4205 Jul 06 16:13	26° 2 46'47		retrograde	4213 Feb 19 17:52	18° 0 52'30	

opposition	4213 May 07 04:28	17° M 30'07	17°33'03	opposition	4221 May 28 02:33	8° ♂ 06'53	16°48'23
min. Earth dist.	4213 May 09 04:16	17° M 26'46	29.40413 AU	min. Earth dist.	4221 May 29 07:07	8° ♂ 04'52	28.76912 AU
direct	4213 Jul 25 20:09	16° M 04'44		direct	4221 Aug 15 16:37	6° ♂ 40'52	
max. Earth dist.	4213 Nov 08 14:31	18° M 41'39	31.25680 AU	max. Earth dist.	4221 Nov 30 08:56	9° ♂ 23'11	30.67414 AU
conjunction	4213 Nov 10 18:03	18° M 46'44	16°27'39	conjunction	4221 Dec 01 12:57	9° ♂ 26'01	15°36'47
minimum elong	4213 Nov 10 17:58	18° M 46'44	16°27'40	minimum elong	4221 Dec 01 13:11	9° ♂ 26'02	15°36'47
retrograde	4214 Feb 22 13:25	21° M 24'36		retrograde	4222 Mar 15 09:06	12° ♂ 06'47	
opposition	4214 May 09 23:44	20° M 02'00	17°34'30	opposition	4222 May 31 00:17	10° ♂ 43'35	16°33'39
min. Earth dist.	4214 May 11 22:33	19° M 58'42	29.28757 AU	min. Earth dist.	4222 Jun 01 01:12	10° ♂ 41'50	28.74009 AU
direct	4214 Jul 28 14:13	18° M 36'23		direct	4222 Aug 18 14:14	9° ♂ 17'39	
max. Earth dist.	4214 Nov 11 13:39	21° M 14'22	31.14479 AU	max. Earth dist.	4222 Dec 03 08:53	12° ♂ 00'11	30.65283 AU
conjunction	4214 Nov 13 13:52	21° M 19'09	16°27'51	conjunction	4222 Dec 04 09:44	12° ♂ 02'42	15°21'59
minimum elong	4214 Nov 13 13:50	21° M 19'09	16°27'51	minimum elong	4222 Dec 04 09:59	12° ♂ 02'44	15°21'59
retrograde	4215 Feb 25 09:55	23° M 57'41		retrograde	4223 Mar 18 03:48	14° ♂ 43'24	
opposition	4215 May 12 19:36	22° M 34'53	17°34'01	opposition	4223 Jun 02 22:27	13° ♂ 20'15	16°16'57
min. Earth dist.	4215 May 14 15:40	22° M 31'47	29.18032 AU	min. Earth dist.	4223 Jun 03 21:42	13° ♂ 18'37	28.72158 AU
direct	4215 Jul 31 11:47	21° M 09'06		direct	4223 Aug 21 12:12	11° ♂ 54'25	
max. Earth dist.	4215 Nov 14 11:06	23° M 47'52	31.04280 AU	max. Earth dist.	4223 Dec 06 08:17	14° ♂ 37'01	30.64226 AU
conjunction	4215 Nov 16 09:42	23° M 52'31	16°26'14	conjunction	4223 Dec 07 06:11	14° ♂ 39'14	15°05'24
minimum elong	4215 Nov 16 09:42	23° M 52'31	16°26'15	minimum elong	4223 Dec 07 06:28	14° ♂ 39'16	15°05'25
retrograde	4216 Feb 28 06:39	26° M 31'38		retrograde	4224 Mar 20 00:14	17° ♂ 19'44	
opposition	4216 May 14 15:57	25° M 08'39	17°31'33	opposition	4224 Jun 04 20:26	15° ♂ 56'39	15°58'22
min. Earth dist.	4216 May 16 09:55	25° M 05'42	29.08336 AU	min. Earth dist.	4224 Jun 05 16:05	15° ♂ 55'16	28.71331 AU
direct	4216 Aug 02 07:36	23° M 42'43		direct	4224 Aug 23 11:55	14° ♂ 30'55	
max. Earth dist.	4216 Nov 16 11:21	26° M 22'25	30.95177 AU	max. Earth dist.	4224 Dec 08 07:18	17° ♂ 13'27	30.64204 AU
conjunction	4216 Nov 18 05:59	26° M 26'40	16°22'45	conjunction	4224 Dec 09 02:33	17° ♂ 15'23	14°47'07
minimum elong	4216 Nov 18 06:01	26° M 26'41	16°22'45	minimum elong	4224 Dec 09 02:51	17° ♂ 15'25	14°47'07
retrograde	4217 Mar 02 01:50	29° M 06'17		retrograde	4225 Mar 22 19:44	19° ♂ 55'36	
opposition	4217 May 17 12:38	27° M 43'11	17°27'03	opposition	4225 Jun 07 18:16	18° ♂ 32'34	15°37'57
min. Earth dist.	4217 May 19 03:54	27° M 40'24	28.99728 AU	min. Earth dist.	4225 Jun 08 12:01	18° ♂ 31'20	28.71531 AU
direct	4217 Aug 05 05:04	26° M 17'08		direct	4225 Aug 26 08:54	17° ♂ 06'57	
max. Earth dist.	4217 Nov 19 09:33	28° M 57'26	30.87240 AU	conjunction	4225 Dec 11 22:41	19° ♂ 50'57	14°27'09
conjunction	4217 Nov 21 02:18	29° M 01'32	16°17'23	minimum elong	4225 Dec 11 23:01	19° ♂ 50'59	14°27'10
minimum elong	4217 Nov 21 02:23	29° M 01'32	16°17'24	max. Earth dist.	4225 Dec 11 06:49	19° ♂ 49'21	30.65232 AU
	4217 Dec 15 21:53	0° ♂		retrograde	4226 Mar 25 15:12	22° ♂ 30'45	
retrograde	4218 Mar 04 23:35	1° ♂ 41'33		opposition	4226 Jun 10 15:56	21° ♂ 07'48	15°15'46
opposition	4218 May 20 09:40	0° ♂ 18'21	17°20'29	min. Earth dist.	4226 Jun 11 06:22	21° ♂ 06'47	28.72739 AU
min. Earth dist.	4218 May 21 21:55	0° ♂ 15'47	28.92284 AU	direct	4226 Aug 29 09:23	19° ♂ 42'19	
	4218 May 31 07:05	30° R M		conjunction	4226 Dec 14 18:17	22° ♂ 25'43	14°05'35
direct	4218 Aug 08 01:23	28° M 52'14		minimum elong	4226 Dec 14 18:37	22° ♂ 25'45	14°05'35
	4218 Oct 11 21:39	0° ♂		max. Earth dist.	4226 Dec 14 04:38	22° ♂ 24'21	30.67295 AU
max. Earth dist.	4218 Nov 22 10:24	1° ♂ 33'19	30.80502 AU	retrograde	4227 Mar 28 10:57	25° ♂ 05'01	
conjunction	4218 Nov 23 22:58	1° ♂ 37'00	16°10'05	opposition	4227 Jun 13 13:23	23° ♂ 42'08	14°51'52
minimum elong	4218 Nov 23 23:05	1° ♂ 37'01	16°10'05	min. Earth dist.	4227 Jun 14 01:10	23° ♂ 41'19	28.74999 AU
retrograde	4219 Mar 07 19:09	4° ♂ 17'21		direct	4227 Sep 01 07:44	22° ♂ 16'47	
opposition	4219 May 23 07:06	2° ♂ 54'06	17°11'51	conjunction	4227 Dec 17 13:32	24° ♂ 59'30	13°42'27
min. Earth dist.	4219 May 24 17:05	2° ♂ 51'42	28.86003 AU	minimum elong	4227 Dec 17 13:54	24° ♂ 59'32	13°42'28
direct	4219 Aug 10 22:03	1° ♂ 27'59		max. Earth dist.	4227 Dec 17 03:55	24° ♂ 58'32	30.70444 AU
max. Earth dist.	4219 Nov 25 09:15	4° ♂ 09'32	30.74979 AU	retrograde	4228 Mar 30 04:32	27° ♂ 38'12	
conjunction	4219 Nov 26 19:34	4° ♂ 12'59	16°00'52	opposition	4228 Jun 15 10:30	26° ♂ 15'24	14°26'20
minimum elong	4219 Nov 26 19:43	4° ♂ 13'00	16°00'53	min. Earth dist.	4228 Jun 15 19:18	26° ♂ 14'47	28.78337 AU
retrograde	4220 Mar 09 16:07	6° ♂ 53'35		direct	4228 Sep 03 06:48	24° ♂ 50'13	
opposition	4220 May 25 04:39	5° ♂ 30'20	17°01'08	conjunction	4228 Dec 19 08:01	27° ♂ 32'08	13°17'52
min. Earth dist.	4220 May 26 11:04	5° ♂ 28'11	28.80899 AU	minimum elong	4228 Dec 19 08:23	27° ♂ 32'10	13°17'51
direct	4220 Aug 12 19:42	4° ♂ 04'14		max. Earth dist.	4228 Dec 19 00:39	27° ♂ 31'24	30.74713 AU
max. Earth dist.	4220 Nov 27 09:49	6° ♂ 46'19	30.70627 AU		4229 Mar 09 00:22	0° ♂	
conjunction	4220 Nov 28 16:15	6° ♂ 49'23	15°49'45	retrograde	4229 Apr 01 23:56	0° ♂ 10'10	
minimum elong	4220 Nov 28 16:26	6° ♂ 49'24	15°49'45		4229 Apr 26 09:32	30° R ♂	
retrograde	4221 Mar 12 11:29	9° ♂ 30'07		opposition	4229 Jun 18 07:10	28° ♂ 47'29	13°59'14

min. Earth dist.	4229 Jun 18 12:29	28° 2 47'06	28.82824 AU	min. Earth dist.	4237 Jul 07 16:30	18° 3 17'40	29.59121 AU
direct	4229 Sep 06 04:34	27° 2 22'29		direct	4237 Sep 26 14:56	16° 3 54'06	
	4229 Dec 20 14:38	0° 3					
conjunction	4229 Dec 22 02:13	0° 3 03'32	12°51'51	conjunction	4238 Jan 10 05:40	19° 3 26'22	8°44'21
minimum elong	4229 Dec 22 02:37	0° 3 03'34	12°51'51	minimum elong	4238 Jan 10 06:00	19° 3 26'24	8°44'20
max. Earth dist.	4229 Dec 21 23:19	0° 3 03'15	30.80153 AU	max. Earth dist.	4238 Jan 11 01:32	19° 3 28'16	31.63519 AU
retrograde	4230 Apr 04 16:34	2° 3 40'50		retrograde	4238 Apr 23 14:51	21° 3 56'11	
opposition	4230 Jun 21 03:25	1° 3 18'17	13°30'38	min. Earth dist.	4238 Jul 10 05:45	20° 3 37'10	29.72924 AU
min. Earth dist.	4230 Jun 21 06:07	1° 3 18'06	28.88482 AU	opposition	4238 Jul 11 02:45	20° 3 35'47	9°01'26
	4230 Aug 20 04:19	30° R 2		direct	4238 Sep 29 07:10	19° 3 13'49	
direct	4230 Sep 09 03:00	29° 2 53'32		conjunction	4239 Jan 12 18:16	21° 3 44'48	8°10'03
	4230 Sep 28 16:44	0° 3		minimum elong	4239 Jan 12 18:35	21° 3 44'49	8°10'04
conjunction	4230 Dec 24 19:43	2° 3 33'40	12°24'30	max. Earth dist.	4239 Jan 13 17:25	21° 3 46'59	31.78039 AU
minimum elong	4230 Dec 24 20:06	2° 3 33'42	12°24'30	retrograde	4239 Apr 26 01:57	24° 3 13'28	
max. Earth dist.	4230 Dec 24 19:09	2° 3 33'36	30.86800 AU	opposition	4239 Jul 13 17:56	22° 3 53'20	8°24'29
retrograde	4231 Apr 07 10:20	5° 3 10'10		min. Earth dist.	4239 Jul 12 18:53	22° 3 54'52	29.87508 AU
opposition	4231 Jun 23 23:15	3° 3 47'49	13°00'39	direct	4239 Oct 02 00:30	21° 3 31'44	
min. Earth dist.	4231 Jun 23 21:41	3° 3 47'56	28.95352 AU	conjunction	4240 Jan 15 05:49	24° 3 01'22	7°35'21
direct	4231 Sep 11 23:44	2° 3 23'21		minimum elong	4240 Jan 15 06:08	24° 3 01'24	7°35'21
conjunction	4231 Dec 27 12:41	5° 3 02'30	11°55'55	max. Earth dist.	4240 Jan 16 06:29	24° 3 03'41	31.93324 AU
minimum elong	4231 Dec 27 13:05	5° 3 02'32	11°55'56	retrograde	4240 Apr 27 14:10	26° 3 28'53	
max. Earth dist.	4231 Dec 27 16:29	5° 3 02'52	30.94644 AU	min. Earth dist.	4240 Jul 14 05:59	25° 3 10'45	30.02892 AU
retrograde	4232 Apr 09 01:21	7° 3 38'11		opposition	4240 Jul 15 08:17	25° 3 09'01	7°47'07
opposition	4232 Jun 25 18:42	6° 3 16'04	12°29'23	direct	4240 Oct 03 15:27	23° 3 47'46	
min. Earth dist.	4232 Jun 25 14:52	6° 3 16'20	29.03396 AU	conjunction	4241 Jan 16 16:51	26° 3 16'02	7°00'19
direct	4232 Sep 13 19:49	4° 3 51'55		minimum elong	4241 Jan 16 17:07	26° 3 16'04	7°00'20
conjunction	4232 Dec 29 05:02	7° 3 30'02	11°26'12	max. Earth dist.	4241 Jan 17 21:04	26° 3 18'40	32.09390 AU
minimum elong	4232 Dec 29 05:25	7° 3 30'05	11°26'12	retrograde	4241 Apr 29 23:50	28° 3 42'21	
max. Earth dist.	4232 Dec 29 11:11	7° 3 30'39	31.03649 AU	opposition	4241 Jul 17 21:47	27° 3 22'46	7°09'28
retrograde	4233 Apr 11 18:27	10° 3 04'50		min. Earth dist.	4241 Jul 16 17:53	27° 3 24'35	30.19084 AU
opposition	4233 Jun 28 13:17	8° 3 43'00	11°56'56	direct	4241 Oct 06 08:23	26° 3 01'52	
min. Earth dist.	4233 Jun 28 05:22	8° 3 43'32	29.12568 AU	conjunction	4242 Jan 19 02:56	28° 3 28'46	6°25'02
direct	4233 Sep 16 15:18	7° 3 19'11		minimum elong	4242 Jan 19 03:11	28° 3 28'47	6°25'02
conjunction	4233 Dec 31 20:55	9° 3 56'15	10°55'27	max. Earth dist.	4242 Jan 20 08:43	28° 3 31'31	32.26271 AU
minimum elong	4233 Dec 31 21:19	9° 3 56'17	10°55'27		4242 Mar 04 14:07	0° 3	
max. Earth dist.	4234 Jan 01 06:42	9° 3 57'12	31.13732 AU	retrograde	4242 May 02 10:44	0° 3 53'53	
retrograde	4234 Apr 14 08:03	12° 3 30'08			4242 Jul 03 21:35	30° R 3	
opposition	4234 Jul 01 07:40	11° 3 08'35	11°23'27	min. Earth dist.	4242 Jul 19 02:57	29° 3 36'38	30.36132 AU
min. Earth dist.	4234 Jun 30 21:52	11° 3 09'15	29.22794 AU	opposition	4242 Jul 20 10:35	29° 3 34'34	6°31'36
direct	4234 Sep 19 09:17	9° 3 45'08		direct	4242 Oct 08 23:04	28° 3 14'02	
conjunction	4235 Jan 03 12:01	12° 3 21'04	10°23'46		4243 Jan 03 07:33	0° 3	
minimum elong	4235 Jan 03 12:23	12° 3 21'06	10°23'47	conjunction	4243 Jan 21 12:14	0° 3 39'34	5°49'33
max. Earth dist.	4235 Jan 04 00:26	12° 3 22'16	31.24835 AU	minimum elong	4243 Jan 21 12:28	0° 3 39'35	5°49'34
retrograde	4235 Apr 16 22:16	14° 3 53'59		max. Earth dist.	4243 Jan 22 21:28	0° 3 42'37	32.43987 AU
min. Earth dist.	4235 Jul 03 11:52	13° 3 33'38	29.34000 AU	retrograde	4243 May 04 17:13	3° 3 03'31	
opposition	4235 Jul 04 01:22	13° 3 32'44	10°49'03	opposition	4243 Jul 22 22:51	1° 3 44'30	5°53'36
direct	4235 Sep 22 04:38	12° 3 09'39		min. Earth dist.	4243 Jul 21 13:30	1° 3 46'40	30.54049 AU
conjunction	4236 Jan 06 02:35	14° 3 44'25	9°51'18	direct	4243 Oct 11 12:15	0° 3 24'22	
minimum elong	4236 Jan 06 02:58	14° 3 44'27	9°51'18	conjunction	4244 Jan 23 20:53	2° 3 48'32	5°13'59
max. Earth dist.	4236 Jan 06 17:48	14° 3 45'53	31.36869 AU	minimum elong	4244 Jan 23 21:06	2° 3 48'33	5°13'59
retrograde	4236 Apr 18 12:05	17° 3 16'21		max. Earth dist.	4244 Jan 25 08:07	2° 3 51'44	32.62558 AU
opposition	4236 Jul 05 18:31	15° 3 55'22	10°13'50	retrograde	4244 May 06 00:27	5° 3 11'17	
min. Earth dist.	4236 Jul 05 02:56	15° 3 56'25	29.46138 AU	min. Earth dist.	4244 Jul 22 21:17	3° 3 54'59	30.72814 AU
direct	4236 Sep 23 20:13	14° 3 32'41		opposition	4244 Jul 24 10:03	3° 3 52'37	5°15'33
conjunction	4237 Jan 07 16:30	17° 3 06'13	9°18'07	direct	4244 Oct 13 01:13	2° 3 32'53	
minimum elong	4237 Jan 07 16:50	17° 3 06'15	9°18'07	conjunction	4245 Jan 25 04:44	4° 3 55'42	4°38'23
max. Earth dist.	4237 Jan 08 10:34	17° 3 07'57	31.49792 AU	minimum elong	4245 Jan 25 04:55	4° 3 55'43	4°38'23
retrograde	4237 Apr 21 00:58	19° 3 37'06		max. Earth dist.	4245 Jan 26 18:36	4° 3 59'07	32.81922 AU
opposition	4237 Jul 08 10:58	18° 3 16'25	9°37'56	retrograde	4245 May 08 07:30	7° 3 17'18	
				min. Earth dist.	4245 Jul 25 06:03	6° 3 01'27	30.92377 AU

opposition	4245 Jul 26 20:44	5°58'58	4°37'32	behind sun end	4253 Feb 10 02:40	20°53'49	
direct	4245 Oct 15 10:57	4°39'40		max. Earth dist.	4253 Feb 11 23:51	20°57'41	34.56676 AU
				desc. node	4253 Feb 16 01:05	21°05'55	
conjunction	4246 Jan 27 11:57	7°01'09	4°02'50	retrograde	4253 May 23 18:31	23°05'55	
minimum elong	4246 Jan 27 12:07	7°01'10	4°02'50	min. Earth dist.	4253 Aug 10 04:29	21°53'32	32.68237 AU
max. Earth dist.	4246 Jan 29 04:18	7°04'47	33.02026 AU	opposition	4253 Aug 12 09:20	21°50'18	0°-17'-1
retrograde	4246 May 10 13:14	9°21'37		direct	4253 Nov 01 07:53	20°34'18	
min. Earth dist.	4246 Jul 27 13:30	8°06'16	31.12643 AU				
opposition	4246 Jul 29 06:38	8°03'38	3°59'38	conjunction	4254 Feb 11 22:09	22°45'33	0°-32'-32
direct	4246 Oct 17 22:42	6°44'47		minimum elong	4254 Feb 11 22:08	22°45'33	0°32'33
				max. Earth dist.	4254 Feb 14 03:02	22°50'00	34.80169 AU
conjunction	4247 Jan 29 18:26	9°04'57	3°27'24	retrograde	4254 May 25 20:20	24°57'04	
minimum elong	4247 Jan 29 18:34	9°04'57	3°27'24	min. Earth dist.	4254 Aug 12 07:25	23°45'04	32.91945 AU
max. Earth dist.	4247 Jan 31 12:17	9°08'40	33.22773 AU	opposition	4254 Aug 14 13:53	23°41'45	0°-51'-52
retrograde	4247 May 12 20:45	11°24'16		direct	4254 Nov 03 11:04	22°26'08	
min. Earth dist.	4247 Jul 29 20:32	10°09'24	31.33561 AU				
opposition	4247 Jul 31 15:59	10°06'39	3°21'56	conjunction	4255 Feb 13 23:33	24°36'09	-1°-5'-8
direct	4247 Oct 20 06:37	8°48'14		minimum elong	4255 Feb 13 23:31	24°36'09	1°05'10
				max. Earth dist.	4255 Feb 16 06:38	24°40'45	35.04052 AU
conjunction	4248 Feb 01 00:20	11°07'06	2°52'09	retrograde	4255 May 27 20:21	26°46'37	
minimum elong	4248 Feb 01 00:27	11°07'06	2°52'09	min. Earth dist.	4255 Aug 14 09:58	25°34'59	33.16058 AU
max. Earth dist.	4248 Feb 02 20:58	11°11'02	33.44096 AU	opposition	4255 Aug 16 17:44	25°31'37	-1°-26'-10
retrograde	4248 May 14 01:46	13°25'17		direct	4255 Nov 05 16:28	24°16'22	
min. Earth dist.	4248 Jul 31 04:00	12°10'50	31.55016 AU				
opposition	4248 Aug 02 00:39	12°08'02	2°44'29	conjunction	4256 Feb 16 00:07	26°25'12	-1°-37'-14
direct	4248 Oct 21 16:10	10°50'03		minimum elong	4256 Feb 16 00:03	26°25'12	1°37'15
				max. Earth dist.	4256 Feb 18 07:48	26°29'49	35.28328 AU
conjunction	4249 Feb 02 05:35	13°07'37	2°17'09	retrograde	4256 May 28 23:16	28°34'38	
minimum elong	4249 Feb 02 05:40	13°07'38	2°17'10	min. Earth dist.	4256 Aug 15 10:46	27°23'26	33.40589 AU
max. Earth dist.	4249 Feb 04 02:52	13°11'35	33.65894 AU	opposition	4256 Aug 17 20:53	27°19'57	-1°-59'-53
	4249 Apr 06 00:08	15°		direct	4256 Nov 06 18:12	26°05'06	
retrograde	4249 May 16 08:22	15°24'41					
	4249 Jun 27 02:49	15°		conjunction	4257 Feb 17 00:20	28°12'47	-2°-8'-48
min. Earth dist.	4249 Aug 02 09:10	14°10'44	31.76943 AU	minimum elong	4257 Feb 17 00:16	28°12'47	2°08'48
opposition	4249 Aug 04 08:24	14°07'47	2°07'21	max. Earth dist.	4257 Feb 19 10:32	28°17'34	35.52984 AU
direct	4249 Oct 24 00:04	12°50'13			4257 Apr 22 09:52	0°	
	4250 Feb 01 07:11	15°		retrograde	4257 May 30 23:42	0°21'13	
					4257 Jul 09 17:07	30°	
conjunction	4250 Feb 04 10:21	15°06'31	1°42'27	min. Earth dist.	4257 Aug 17 12:46	29°10'21	33.65488 AU
minimum elong	4250 Feb 04 10:25	15°06'32	1°42'28	opposition	4257 Aug 19 23:21	29°06'52	-2°-32'-59
max. Earth dist.	4250 Feb 06 10:13	15°10'41	33.88097 AU	direct	4257 Nov 08 21:00	27°52'25	
retrograde	4250 May 18 12:21	17°22'28					
min. Earth dist.	4250 Aug 04 16:01	16°08'53	31.99260 AU	conjunction	4258 Feb 18 23:52	29°59'00	-2°-39'-47
opposition	4250 Aug 06 15:49	16°05'55	1°30'35	minimum elong	4258 Feb 18 23:46	29°58'59	2°39'48
	4250 Sep 28 12:35	15°			4258 Feb 19 12:10	0°	
direct	4250 Oct 26 09:45	14°48'46		max. Earth dist.	4258 Feb 21 10:29	0°03'47	35.77980 AU
	4250 Nov 22 16:11	15°		retrograde	4258 Jun 01 23:52	2°06'26	
				min. Earth dist.	4258 Aug 19 12:14	0°56'03	33.90714 AU
conjunction	4251 Feb 06 14:15	17°03'47	1°08'06	opposition	4258 Aug 22 01:17	0°52'26	-3°-5'-26
minimum elong	4251 Feb 06 14:17	17°03'48	1°08'07		4258 Oct 01 19:58	30°	
max. Earth dist.	4251 Feb 08 14:37	17°07'57	34.10649 AU	direct	4258 Nov 10 23:11	29°38'23	
retrograde	4251 May 20 17:02	19°18'37			4258 Dec 19 23:01	0°	
min. Earth dist.	4251 Aug 06 20:04	18°05'30	32.21922 AU				
opposition	4251 Aug 08 22:23	18°02'23	0°54'15	conjunction	4259 Feb 20 22:48	1°43'53	-3°-10'-12
direct	4251 Oct 28 18:01	16°45'38		minimum elong	4259 Feb 20 22:42	1°43'52	3°10'13
				max. Earth dist.	4259 Feb 23 11:23	1°48'47	36.03242 AU
conjunction	4252 Feb 08 17:38	18°59'24	0°34'08	retrograde	4259 Jun 03 21:30	3°50'22	
minimum elong	4252 Feb 08 17:40	18°59'24	0°34'09	min. Earth dist.	4259 Aug 21 13:28	2°40'19	34.16197 AU
max. Earth dist.	4252 Feb 10 19:58	19°03'42	34.33503 AU	opposition	4259 Aug 24 02:48	2°36'41	-3°-37'-15
retrograde	4252 May 21 18:07	21°13'06		direct	4259 Nov 13 02:43	1°23'03	
min. Earth dist.	4252 Aug 08 01:24	20°00'19	32.44915 AU				
opposition	4252 Aug 10 04:15	19°57'11	0°18'22	conjunction	4260 Feb 22 21:22	3°27'29	-3°-40'-1
direct	4252 Oct 30 00:47	18°40'49		minimum elong	4260 Feb 22 21:15	3°27'28	3°40'01
				max. Earth dist.	4260 Feb 25 10:40	3°32'24	36.28716 AU
conjunction	4253 Feb 09 20:19	20°53'19	0°00'35	retrograde	4260 Jun 04 18:26	5°33'01	
minimum elong	4253 Feb 09 20:20	20°53'19	0°00'35	min. Earth dist.	4260 Aug 22 12:40	4°23'22	34.41850 AU
behind sun begin	4253 Feb 09 13:59	20°52'48		opposition	4260 Aug 25 03:25	4°19'41	-4°-8'-23

direct	4260 Nov 14 05:38	3° ✕ 06'25		minimum elong	4269 Mar 08 10:14	18° ✕ 01'56	7°40'23
				max. Earth dist.	4269 Mar 11 06:20	18° ✕ 07'04	38.58996 AU
conjunction	4261 Feb 23 19:24	5° ✕ 09'48	-4°-9'-13	retrograde	4269 Jun 19 04:15	19° ✕ 59'33	
minimum elong	4261 Feb 23 19:17	5° ✕ 09'48	4°09'15	min. Earth dist.	4269 Sep 06 14:36	18° ✕ 52'31	36.73753 AU
max. Earth dist.	4261 Feb 26 09:22	5° ✕ 14'45	36.54300 AU	opposition	4269 Sep 09 10:56	18° ✕ 48'40	-8°-17'-56
retrograde	4261 Jun 06 16:35	7° ✕ 14'25		direct	4269 Nov 29 16:52	17° ✕ 38'21	
min. Earth dist.	4261 Aug 24 12:19	6° ✕ 05'07	34.67611 AU				
opposition	4261 Aug 27 03:46	6° ✕ 01'25	-4°-38'-52	conjunction	4270 Mar 10 04:01	19° ✕ 32'59	-8°-3'-52
direct	4261 Nov 16 05:24	4° ✕ 48'33		minimum elong	4270 Mar 10 03:49	19° ✕ 32'58	8°03'52
				max. Earth dist.	4270 Mar 12 23:38	19° ✕ 38'03	38.84768 AU
conjunction	4262 Feb 25 17:01	6° ✕ 50'53	-4°-37'-49	retrograde	4270 Jun 21 00:18	21° ✕ 29'49	
minimum elong	4262 Feb 25 16:52	6° ✕ 50'52	4°37'50	min. Earth dist.	4270 Sep 08 08:34	20° ✕ 23'09	36.99753 AU
max. Earth dist.	4262 Feb 28 08:19	6° ✕ 55'54	36.79941 AU	opposition	4270 Sep 11 06:35	20° ✕ 19'14	-8°-42'-10
retrograde	4262 Jun 08 12:42	8° ✕ 54'35		direct	4270 Dec 01 10:12	19° ✕ 09'15	
min. Earth dist.	4262 Aug 26 11:47	7° ✕ 45'36	34.93387 AU				
opposition	4262 Aug 29 03:34	7° ✕ 41'53	-5°-8'-39	conjunction	4271 Mar 11 21:28	21° ✕ 03'03	-8°-26'-43
direct	4262 Nov 18 06:18	6° ✕ 29'22		minimum elong	4271 Mar 11 21:15	21° ✕ 03'02	8°26'44
				max. Earth dist.	4271 Mar 14 18:38	21° ✕ 08'12	39.10577 AU
conjunction	4263 Feb 27 14:06	8° ✕ 30'41	-5°-5'-48	retrograde	4271 Jun 22 17:49	22° ✕ 59'09	
minimum elong	4263 Feb 27 13:57	8° ✕ 30'40	5°05'49	min. Earth dist.	4271 Sep 10 04:27	21° ✕ 52'43	37.25768 AU
max. Earth dist.	4263 Mar 02 04:59	8° ✕ 35'38	37.05564 AU	opposition	4271 Sep 13 01:51	21° ✕ 48'52	-9°-5'-42
retrograde	4263 Jun 10 11:58	10° ✕ 33'29		direct	4271 Dec 03 05:28	20° ✕ 39'13	
min. Earth dist.	4263 Aug 28 09:42	9° ✕ 24'49	35.19150 AU				
opposition	4263 Aug 31 02:50	9° ✕ 21'04	-5°-37'-46	conjunction	4272 Mar 12 14:27	22° ✕ 32'13	-8°-48'-55
direct	4263 Nov 20 03:27	8° ✕ 08'53		minimum elong	4272 Mar 12 14:15	22° ✕ 32'12	8°48'56
				max. Earth dist.	4272 Mar 15 11:23	22° ✕ 37'19	39.36374 AU
conjunction	4264 Feb 29 10:49	10° ✕ 09'11	-5°-33'-9	retrograde	4272 Jun 23 10:46	24° ✕ 27'35	
minimum elong	4264 Feb 29 10:38	10° ✕ 09'10	5°33'10	min. Earth dist.	4272 Sep 10 21:54	23° ✕ 21'31	37.51731 AU
max. Earth dist.	4264 Mar 03 03:10	10° ✕ 14'12	37.31139 AU	opposition	4272 Sep 13 20:33	23° ✕ 17'36	-9°-28'-34
retrograde	4264 Jun 11 08:11	12° ✕ 11'04		direct	4272 Dec 04 01:05	22° ✕ 08'17	
min. Earth dist.	4264 Aug 29 09:01	11° ✕ 02'37	35.44854 AU				
opposition	4264 Sep 01 01:36	10° ✕ 58'55	-6°-6'-12	conjunction	4273 Mar 14 07:06	24° ✕ 00'31	-9°-10'-30
direct	4264 Nov 21 02:34	9° ✕ 47'03		minimum elong	4273 Mar 14 06:53	24° ✕ 00'30	9°10'32
				max. Earth dist.	4273 Mar 17 04:35	24° ✕ 05'37	39.62072 AU
conjunction	4265 Mar 02 06:55	11° ✕ 46'20	-5°-59'-53	retrograde	4273 Jun 25 03:05	25° ✕ 55'11	
minimum elong	4265 Mar 02 06:45	11° ✕ 46'19	5°59'54	min. Earth dist.	4273 Sep 12 16:41	24° ✕ 49'22	37.77584 AU
max. Earth dist.	4265 Mar 04 22:54	11° ✕ 51'17	37.56657 AU	opposition	4273 Sep 15 14:57	24° ✕ 45'29	-9°-50'-45
retrograde	4265 Jun 13 04:25	13° ✕ 47'18		direct	4273 Dec 05 20:02	23° ✕ 36'30	
min. Earth dist.	4265 Aug 31 05:25	12° ✕ 39'11	35.70522 AU				
opposition	4265 Sep 02 23:34	12° ✕ 35'24	-6°-33'-57	conjunction	4274 Mar 15 23:34	25° ✕ 27'58	-9°-31'-28
direct	4265 Nov 23 01:48	11° ✕ 23'50		minimum elong	4274 Mar 15 23:22	25° ✕ 27'57	9°31'29
				max. Earth dist.	4274 Mar 18 21:28	25° ✕ 33'04	39.87633 AU
conjunction	4266 Mar 04 02:31	13° ✕ 22'08	-6°-25'-58	retrograde	4274 Jun 26 17:32	27° ✕ 21'57	
minimum elong	4266 Mar 04 02:20	13° ✕ 22'07	6°25'59	min. Earth dist.	4274 Sep 14 10:35	26° ✕ 16'24	38.03251 AU
max. Earth dist.	4266 Mar 06 19:46	13° ✕ 27'09	37.82148 AU	opposition	4274 Sep 17 08:58	26° ✕ 12'32	-10°-12'-17
retrograde	4266 Jun 14 23:17	15° ✕ 22'13		direct	4274 Dec 07 15:58	25° ✕ 03'51	
min. Earth dist.	4266 Sep 02 03:12	14° ✕ 14'19	35.96214 AU				
opposition	4266 Sep 04 21:19	14° ✕ 10'33	-7°-1'00	conjunction	4275 Mar 17 15:29	26° ✕ 54'33	-9°-51'-50
direct	4266 Nov 25 00:48	12° ✕ 59'17		minimum elong	4275 Mar 17 15:16	26° ✕ 54'32	9°51'51
				max. Earth dist.	4275 Mar 20 12:35	26° ✕ 59'35	40.12974 AU
conjunction	4267 Mar 05 21:33	14° ✕ 56'37	-6°-51'-25	retrograde	4275 Jun 28 10:33	28° ✕ 47'52	
minimum elong	4267 Mar 05 21:22	14° ✕ 56'36	6°51'27	min. Earth dist.	4275 Sep 16 03:56	27° ✕ 42'34	38.28692 AU
max. Earth dist.	4267 Mar 08 15:29	15° ✕ 01'40	38.07686 AU	opposition	4275 Sep 19 02:40	27° ✕ 38'42	-10°-33'-11
retrograde	4267 Jun 16 16:16	16° ✕ 55'50		direct	4275 Dec 09 09:01	26° ✕ 30'19	
min. Earth dist.	4267 Sep 03 23:05	15° ✕ 48'15	36.21964 AU				
opposition	4267 Sep 06 18:22	15° ✕ 44'26	-7°-27'-21	conjunction	4276 Mar 18 07:23	28° ✕ 20'16	-10°-11'-36
direct	4267 Nov 27 00:05	14° ✕ 33'27		minimum elong	4276 Mar 18 07:11	28° ✕ 20'15	10°11'36
				max. Earth dist.	4276 Mar 21 05:23	28° ✕ 25'19	40.38063 AU
conjunction	4268 Mar 06 16:08	16° ✕ 29'51	-7°-16'-13		4276 May 28 05:44	0° ∇	
minimum elong	4268 Mar 06 15:57	16° ✕ 29'50	7°16'13	retrograde	4276 Jun 29 02:49	0° ∇ 12'53	
max. Earth dist.	4268 Mar 09 10:26	16° ✕ 34'53	38.33291 AU		4276 Jul 31 16:57	30° ✕	
retrograde	4268 Jun 17 10:39	18° ✕ 28'15		min. Earth dist.	4276 Sep 16 22:05	29° ✕ 07'45	38.53856 AU
min. Earth dist.	4268 Sep 04 18:42	17° ✕ 20'57	36.47820 AU	opposition	4276 Sep 19 19:46	29° ✕ 03'57	-10°-53'-27
opposition	4268 Sep 07 14:51	17° ✕ 17'06	-7°-53'00	direct	4276 Dec 10 01:47	27° ✕ 55'50	
direct	4268 Nov 27 20:22	16° ✕ 06'26					
				conjunction	4277 Mar 19 22:42	29° ✕ 45'02	-10°-30'-47
conjunction	4269 Mar 08 10:26	18° ✕ 01'57	-7°-40'-22	minimum elong	4277 Mar 19 22:29	29° ✕ 45'01	10°30'48

max. Earth dist.	4277 Mar 22 19:36	29° 4 49'58	40.62889 AU	max. Earth dist.	4285 Apr 02 11:17	10° 7 35'44	42.56054 AU
	4277 Mar 28 15:48	0° 7		retrograde	4285 Jul 11 08:31	12° 7 17'54	
retrograde	4277 Jun 30 19:49	1° 7 36'57		min. Earth dist.	4285 Sep 29 15:26	11° 7 14'41	40.72980 AU
min. Earth dist.	4277 Sep 18 13:49	0° 7 32'05	38.78771 AU	opposition	4285 Oct 02 13:47	11° 7 10'59	-13°-27'-59
opposition	4277 Sep 21 12:31	0° 7 28'15	-11°-13'-5	direct	4285 Dec 22 20:27	10° 7 05'09	
	4277 Oct 13 21:11	30° 8					
direct	4277 Dec 11 16:58	29° 4 20'23		conjunction	4286 Apr 01 01:41	11° 7 48'22	-12°-57'-19
	4278 Feb 06 00:20	0° 7		minimum elong	4286 Apr 01 01:31	11° 7 48'22	12°57'21
				max. Earth dist.	4286 Apr 04 00:07	11° 7 53'11	42.79416 AU
conjunction	4278 Mar 21 13:33	1° 7 08'50	-10°-49'-23	retrograde	4286 Jul 12 18:56	13° 7 34'49	
minimum elong	4278 Mar 21 13:21	1° 7 08'49	10°49'24	min. Earth dist.	4286 Oct 01 05:42	12° 7 31'48	40.96361 AU
max. Earth dist.	4278 Mar 24 11:14	1° 7 13'47	40.87477 AU	opposition	4286 Oct 04 03:35	12° 7 28'08	-13°-42'-13
retrograde	4278 Jul 02 10:09	3° 7 00'04		direct	4286 Dec 24 12:31	11° 7 22'34	
min. Earth dist.	4278 Sep 20 07:17	1° 7 55'20	39.03486 AU				
opposition	4278 Sep 23 05:04	1° 7 51'34	-11°-32'-6	conjunction	4287 Apr 02 14:06	13° 7 05'12	-13°-10'-53
direct	4278 Dec 13 10:14	0° 7 43'56		minimum elong	4287 Apr 02 13:55	13° 7 05'11	13°10'53
				max. Earth dist.	4287 Apr 05 11:10	13° 7 09'54	43.02429 AU
conjunction	4279 Mar 23 04:11	2° 7 31'39	-11°-7'-23	retrograde	4287 Jul 14 08:26	14° 7 51'08	
minimum elong	4279 Mar 23 03:57	2° 7 31'38	11°07'24	min. Earth dist.	4287 Oct 02 19:11	13° 7 48'19	41.19381 AU
max. Earth dist.	4279 Mar 26 01:50	2° 7 36'35	41.11907 AU	opposition	4287 Oct 05 17:03	13° 7 44'40	-13°-55'-56
retrograde	4279 Jul 03 22:41	4° 7 22'12		direct	4287 Dec 26 01:23	12° 7 39'20	
min. Earth dist.	4279 Sep 21 22:26	3° 7 17'42	39.28057 AU				
opposition	4279 Sep 24 20:57	3° 7 13'54	-11°-50'-29	conjunction	4288 Apr 03 02:25	14° 7 21'24	-13°-23'-56
direct	4279 Dec 15 03:52	2° 7 06'31		minimum elong	4288 Apr 03 02:15	14° 7 21'24	13°23'58
				max. Earth dist.	4288 Apr 05 23:55	14° 7 26'06	43.25050 AU
conjunction	4280 Mar 23 18:20	3° 7 53'31	-11°-24'-48	retrograde	4288 Jul 14 21:01	16° 7 06'48	
minimum elong	4280 Mar 23 18:08	3° 7 53'31	11°24'49	min. Earth dist.	4288 Oct 03 10:00	15° 7 04'06	41.41977 AU
max. Earth dist.	4280 Mar 26 15:56	3° 7 58'26	41.36209 AU	opposition	4288 Oct 06 06:19	15° 7 00'33	-14°-9'-9
retrograde	4280 Jul 04 12:37	5° 7 43'26		direct	4288 Dec 26 15:03	13° 7 55'26	
min. Earth dist.	4280 Sep 22 13:58	4° 7 39'08	39.52532 AU				
opposition	4280 Sep 25 12:38	4° 7 35'21	-12°-8'-15	conjunction	4289 Apr 04 14:19	15° 7 36'56	-13°-36'-31
direct	4280 Dec 15 20:04	3° 7 28'12		minimum elong	4289 Apr 04 14:09	15° 7 36'56	13°36'32
				max. Earth dist.	4289 Apr 07 10:17	15° 7 41'30	43.47264 AU
conjunction	4281 Mar 25 08:19	5° 7 14'31	-11°-41'-38	retrograde	4289 Jul 16 11:00	17° 7 21'48	
minimum elong	4281 Mar 25 08:06	5° 7 14'30	11°41'39	min. Earth dist.	4289 Oct 04 22:22	16° 7 19'18	41.64169 AU
max. Earth dist.	4281 Mar 28 06:55	5° 7 19'28	41.60426 AU	opposition	4289 Oct 07 19:07	16° 7 15'44	-14°-21'-52
retrograde	4281 Jul 06 00:15	7° 7 03'48		direct	4289 Dec 28 01:47	15° 7 10'49	
min. Earth dist.	4281 Sep 24 05:23	5° 7 59'42	39.76903 AU				
opposition	4281 Sep 27 03:50	5° 7 55'56	-12°-25'-23	conjunction	4290 Apr 06 01:56	16° 7 51'47	-13°-48'-38
direct	4281 Dec 17 13:34	4° 7 49'03		minimum elong	4290 Apr 06 01:46	16° 7 51'46	13°48'40
				max. Earth dist.	4290 Apr 08 21:56	16° 7 56'19	43.69093 AU
conjunction	4282 Mar 26 21:52	6° 7 34'41	-11°-57'-53	retrograde	4290 Jul 17 22:54	18° 7 36'07	
minimum elong	4282 Mar 26 21:40	6° 7 34'40	11°57'54	min. Earth dist.	4290 Oct 06 12:27	17° 7 33'42	41.86015 AU
max. Earth dist.	4282 Mar 29 19:38	6° 7 39'33	41.84552 AU	opposition	4290 Oct 09 07:50	17° 7 30'13	-14°-34'-5
retrograde	4282 Jul 07 16:05	8° 7 23'22		direct	4290 Dec 29 13:32	16° 7 25'30	
min. Earth dist.	4282 Sep 25 19:21	7° 7 19'32	40.01185 AU				
opposition	4282 Sep 28 18:49	7° 7 15'44	-12°-41'-55	conjunction	4291 Apr 07 13:18	18° 7 05'54	-14°00'-15
direct	4282 Dec 19 02:50	6° 7 09'07		minimum elong	4291 Apr 07 13:10	18° 7 05'54	14°00'16
				max. Earth dist.	4291 Apr 10 09:15	18° 7 10'25	43.90616 AU
conjunction	4283 Mar 28 11:09	7° 7 54'07	-12°-13'-34	retrograde	4291 Jul 19 07:00	19° 7 49'43	
minimum elong	4283 Mar 28 10:57	7° 7 54'06	12°13'34	min. Earth dist.	4291 Oct 08 00:30	18° 7 47'29	42.07562 AU
max. Earth dist.	4283 Mar 31 10:04	7° 7 59'02	42.08563 AU	opposition	4291 Oct 10 20:02	18° 7 44'00	-14°-45'-47
retrograde	4283 Jul 09 07:03	9° 7 42'13		direct	4291 Dec 31 04:36	17° 7 39'29	
min. Earth dist.	4283 Sep 27 11:06	8° 7 38'33	40.25325 AU				
opposition	4283 Sep 30 09:33	8° 7 34'49	-12°-57'-51	conjunction	4292 Apr 08 00:21	19° 7 19'21	-14°-11'-24
direct	4283 Dec 20 16:19	7° 7 28'28		minimum elong	4292 Apr 08 00:11	19° 7 19'21	14°11'25
				max. Earth dist.	4292 Apr 10 19:16	19° 7 23'47	44.11869 AU
conjunction	4284 Mar 29 00:17	9° 7 12'51	-12°-28'-41	retrograde	4292 Jul 19 17:12	21° 7 02'40	
minimum elong	4284 Mar 29 00:06	9° 7 12'50	12°28'43	min. Earth dist.	4292 Oct 08 12:33	20° 7 00'36	42.28878 AU
max. Earth dist.	4284 Mar 31 22:37	9° 7 17'41	42.32422 AU	opposition	4292 Oct 11 07:55	19° 7 57'08	-14°-56'-59
retrograde	4284 Jul 09 20:00	11° 7 00'22		direct	4292 Dec 31 17:45	18° 7 52'49	
min. Earth dist.	4284 Sep 28 00:26	9° 7 56'58	40.49273 AU				
opposition	4284 Sep 30 23:39	9° 7 53'13	-13°-13'-12	conjunction	4293 Apr 09 11:18	20° 7 32'10	-14°-22'-4
direct	4284 Dec 21 06:02	8° 7 47'07		minimum elong	4293 Apr 09 11:10	20° 7 32'10	14°22'05
				max. Earth dist.	4293 Apr 12 07:04	20° 7 36'38	44.32911 AU
conjunction	4285 Mar 30 13:05	10° 7 30'55	-12°-43'-16	retrograde	4293 Jul 21 03:16	22° 7 15'01	
minimum elong	4285 Mar 30 12:54	10° 7 30'54	12°43'17	min. Earth dist.	4293 Oct 10 01:10	21° 7 13'04	42.49972 AU

opposition	4293 Oct 12 19:39	21°♊09'40	-15°-7'-41	opposition	4301 Oct 23 09:11	0°♊31'57	-16°-16'-35
direct	4294 Jan 02 07:02	20°♊05'33			4301 Nov 20 07:24	30°♊♊	
				direct	4302 Jan 12 18:00	29°♊29'21	
conjunction	4294 Apr 10 21:45	21°♊44'24	-14°-32'-15		4302 Mar 05 11:47	0°♊	
minimum elong	4294 Apr 10 21:36	21°♊44'24	14°32'16				
max. Earth dist.	4294 Apr 13 16:25	21°♊48'47	44.53752 AU	conjunction	4302 Apr 21 04:16	1°♊04'40	-15°-38'00
retrograde	4294 Jul 22 16:04	23°♊26'48		minimum elong	4302 Apr 21 04:12	1°♊04'40	15°38'01
min. Earth dist.	4294 Oct 11 11:50	22°♊25'05	42.70865 AU	max. Earth dist.	4302 Apr 23 18:10	1°♊08'35	46.09295 AU
opposition	4294 Oct 14 07:08	22°♊21'39	-15°-17'-53	retrograde	4302 Aug 01 23:08	2°♊43'39	
direct	4295 Jan 03 16:46	21°♊17'44		min. Earth dist.	4302 Oct 22 05:57	1°♊42'55	44.25942 AU
				opposition	4302 Oct 24 19:01	1°♊39'52	-16°-23'-20
conjunction	4295 Apr 12 08:11	22°♊56'07	-14°-41'-58	direct	4303 Jan 14 03:19	0°♊37'25	
minimum elong	4295 Apr 12 08:04	22°♊56'07	14°41'59				
max. Earth dist.	4295 Apr 15 03:19	23°♊00'30	44.74378 AU	conjunction	4303 Apr 22 13:21	2°♊12'17	-15°-44'-27
retrograde	4295 Jul 24 04:18	24°♊38'04		minimum elong	4303 Apr 22 13:17	2°♊12'17	15°44'29
min. Earth dist.	4295 Oct 13 00:24	23°♊36'27	42.91529 AU	max. Earth dist.	4303 Apr 25 03:28	2°♊16'12	46.26895 AU
opposition	4295 Oct 15 18:22	23°♊33'06	-15°-27'-35	retrograde	4303 Aug 03 05:07	3°♊50'51	
direct	4296 Jan 05 02:01	22°♊29'25		min. Earth dist.	4303 Oct 23 16:05	2°♊50'11	44.43472 AU
				opposition	4303 Oct 26 04:20	2°♊47'11	-16°-29'-41
conjunction	4296 Apr 12 18:28	24°♊07'21	-14°-51'-13	direct	4304 Jan 15 15:19	1°♊44'51	
minimum elong	4296 Apr 12 18:20	24°♊07'20	14°51'14				
max. Earth dist.	4296 Apr 15 13:05	24°♊11'40	44.94775 AU	conjunction	4304 Apr 22 22:03	3°♊19'19	-15°-50'-30
retrograde	4296 Jul 24 14:18	25°♊48'51		minimum elong	4304 Apr 22 22:00	3°♊19'19	15°50'31
min. Earth dist.	4296 Oct 13 11:06	24°♊47'27	43.11919 AU	max. Earth dist.	4304 Apr 25 10:40	3°♊23'08	46.44172 AU
opposition	4296 Oct 16 05:17	24°♊44'06	-15°-36'-49	retrograde	4304 Aug 03 13:56	4°♊57'29	
direct	4297 Jan 05 11:45	23°♊40'36		min. Earth dist.	4304 Oct 24 01:09	3°♊56'57	44.60712 AU
				opposition	4304 Oct 26 13:33	3°♊53'57	-16°-35'-37
conjunction	4297 Apr 14 04:22	25°♊18'06	-15°00'-1	direct	4305 Jan 16 00:57	2°♊51'46	
minimum elong	4297 Apr 14 04:16	25°♊18'06	15°00'03				
max. Earth dist.	4297 Apr 16 22:08	25°♊22'21	45.14871 AU	conjunction	4305 Apr 24 06:33	4°♊25'49	-15°-56'-9
retrograde	4297 Jul 25 23:53	26°♊59'11		minimum elong	4305 Apr 24 06:29	4°♊25'49	15°56'11
min. Earth dist.	4297 Oct 14 22:46	25°♊57'56	43.31998 AU	max. Earth dist.	4305 Apr 26 19:43	4°♊29'39	46.61174 AU
opposition	4297 Oct 17 16:09	25°♊54'38	-15°-45'-37	retrograde	4305 Aug 04 23:07	6°♊03'37	
direct	4298 Jan 06 23:12	24°♊51'21		min. Earth dist.	4305 Oct 25 11:34	5°♊03'08	44.77687 AU
				opposition	4305 Oct 27 22:39	5°♊00'13	-16°-41'-9
conjunction	4298 Apr 15 14:22	26°♊28'25	-15°-8'-25	direct	4306 Jan 17 10:38	3°♊58'11	
minimum elong	4298 Apr 15 14:15	26°♊28'24	15°08'26				
max. Earth dist.	4298 Apr 18 08:27	26°♊32'40	45.34634 AU	conjunction	4306 Apr 25 14:58	5°♊31'51	-16°-1'-25
retrograde	4298 Jul 27 06:45	28°♊09'05		minimum elong	4306 Apr 25 14:55	5°♊31'51	16°01'26
min. Earth dist.	4298 Oct 16 10:25	27°♊07'58	43.51694 AU	max. Earth dist.	4306 Apr 28 03:12	5°♊35'37	46.77949 AU
opposition	4298 Oct 19 02:44	27°♊04'43	-15°-53'-58	retrograde	4306 Aug 06 09:25	7°♊09'17	
direct	4299 Jan 08 13:06	26°♊01'39		min. Earth dist.	4306 Oct 26 19:45	6°♊08'59	44.94425 AU
				opposition	4306 Oct 29 07:24	6°♊06'02	-16°-46'-16
conjunction	4299 Apr 17 00:04	27°♊38'16	-15°-16'-23	direct	4307 Jan 18 16:58	5°♊04'09	
minimum elong	4299 Apr 16 23:59	27°♊38'15	15°16'25				
max. Earth dist.	4299 Apr 19 16:19	27°♊42'23	45.53993 AU	conjunction	4307 Apr 26 23:06	6°♊37'29	-16°-6'-17
retrograde	4299 Jul 28 18:15	29°♊18'32		minimum elong	4307 Apr 26 23:03	6°♊37'29	16°06'18
min. Earth dist.	4299 Oct 17 20:55	28°♊17'33	43.70959 AU	max. Earth dist.	4307 Apr 29 10:51	6°♊41'12	46.94478 AU
opposition	4299 Oct 20 13:08	28°♊14'20	-16°-1'-54	retrograde	4307 Aug 07 18:02	8°♊14'35	
direct	4300 Jan 09 23:08	27°♊11'26		min. Earth dist.	4307 Oct 28 05:45	7°♊14'22	45.10915 AU
				opposition	4307 Oct 30 16:08	7°♊11'30	-16°-50'-59
conjunction	4300 Apr 18 09:48	28°♊47'37	-15°-23'-58	direct	4308 Jan 20 00:31	6°♊09'47	
minimum elong	4300 Apr 18 09:42	28°♊47'37	15°23'59				
max. Earth dist.	4300 Apr 21 01:54	28°♊51'43	45.72888 AU	conjunction	4308 Apr 27 07:19	7°♊42'47	-16°-10'-46
	4300 Jun 10 06:01	0°♊		minimum elong	4308 Apr 27 07:18	7°♊42'47	16°10'47
retrograde	4300 Jul 30 05:17	0°♊27'28		max. Earth dist.	4308 Apr 29 19:16	7°♊46'30	47.10756 AU
	4300 Sep 19 13:11	30°♊♊		retrograde	4308 Aug 07 22:53	9°♊19'33	
min. Earth dist.	4300 Oct 19 09:04	29°♊26'33	43.89740 AU	min. Earth dist.	4308 Oct 28 14:26	8°♊19'29	45.27113 AU
opposition	4300 Oct 21 23:16	29°♊23'26	-16°-9'-26	opposition	4308 Oct 31 00:25	8°♊16'38	-16°-55'-19
direct	4301 Jan 11 09:02	28°♊20'42		direct	4309 Jan 20 11:13	7°♊15'06	
conjunction	4301 Apr 19 19:16	29°♊56'26	-15°-31'-11	conjunction	4309 Apr 28 15:12	8°♊47'47	-16°-14'-53
minimum elong	4301 Apr 19 19:11	29°♊56'26	15°31'12	minimum elong	4309 Apr 28 15:09	8°♊47'47	16°14'55
max. Earth dist.	4301 Apr 22 10:13	0°♊00'26	45.91319 AU	max. Earth dist.	4309 May 01 01:28	8°♊51'23	47.26735 AU
	4301 Apr 22 03:16	0°♊		retrograde	4309 Aug 09 07:06	10°♊24'15	
retrograde	4301 Jul 31 14:27	1°♊35'51		min. Earth dist.	4309 Oct 29 23:05	9°♊24'20	45.43000 AU
min. Earth dist.	4301 Oct 20 18:54	0°♊35'04	44.08048 AU	opposition	4309 Nov 01 08:47	9°♊21'31	-16°-59'-16

direct	4310 Jan 21 20:11	8°8'20"09		min. Earth dist.	4317 Nov 07 20:19	17°8'51"20	46.54184 AU
				opposition	4317 Nov 09 21:54	17°8'48"56	-17°-19'-2
conjunction	4310 Apr 29 23:02	9°8'52"32	-16°-18'-40	direct	4318 Jan 30 08:12	16°8'48"34	
minimum elong	4310 Apr 29 23:01	9°8'52"32	16°18'41				
max. Earth dist.	4310 May 02 09:37	9°8'56"08	47.42365 AU	conjunction	4318 May 08 09:40	18°8'18"31	-16°-37'-22
retrograde	4310 Aug 10 15:43	11°8'28"43		minimum elong	4318 May 08 09:41	18°8'18"31	16°37'24
min. Earth dist.	4310 Oct 31 09:11	10°8'28"53	45.58492 AU	max. Earth dist.	4318 May 10 13:21	18°8'21"37	48.51581 AU
opposition	4310 Nov 02 17:03	10°8'26"09	-17°-2'-53	retrograde	4318 Aug 19 02:32	19°8'52"15	
direct	4311 Jan 23 05:25	9°8'24"58		min. Earth dist.	4318 Nov 09 03:15	18°8'53"01	46.66415 AU
				opposition	4318 Nov 11 04:48	18°8'50"38	-17°-20'-2
conjunction	4311 May 01 06:54	10°8'57"02	-16°-22'-6	direct	4319 Jan 31 15:34	17°8'50"23	
minimum elong	4311 May 01 06:53	10°8'57"02	16°22'06				
max. Earth dist.	4311 May 03 15:56	11°8'00"32	47.57586 AU	conjunction	4319 May 09 16:20	19°8'20"04	-16°-38'-16
retrograde	4311 Aug 12 01:20	12°8'32"54		minimum elong	4319 May 09 16:23	19°8'20"04	16°38'17
min. Earth dist.	4311 Nov 01 17:06	11°8'33"14	45.73536 AU	max. Earth dist.	4319 May 11 18:24	19°8'23"03	48.63658 AU
opposition	4311 Nov 04 00:56	11°8'30"31	-17°-6'-9	retrograde	4319 Aug 20 07:48	20°8'53"32	
direct	4312 Jan 24 11:25	10°8'29"29		min. Earth dist.	4319 Nov 10 10:36	19°8'54"22	46.78370 AU
				opposition	4319 Nov 12 11:31	19°8'52"02	-17°-20'-41
conjunction	4312 May 01 14:39	12°8'01"16	-16°-25'-13	direct	4320 Feb 01 22:31	18°8'51"53	
minimum elong	4312 May 01 14:39	12°8'01"16	16°25'14				
max. Earth dist.	4312 May 03 22:33	12°8'04"40	47.72321 AU	conjunction	4320 May 09 23:03	20°8'21"19	-16°-38'-51
retrograde	4312 Aug 12 10:43	13°8'36"50		minimum elong	4320 May 09 23:05	20°8'21"20	16°38'53
min. Earth dist.	4312 Nov 02 03:03	12°8'37"11	45.88079 AU	max. Earth dist.	4320 May 12 01:28	20°8'24"20	48.75448 AU
opposition	4312 Nov 04 08:57	12°8'34"35	-17°-9'-6	retrograde	4320 Aug 20 12:50	21°8'54"33	
direct	4313 Jan 24 17:03	11°8'33"41		min. Earth dist.	4320 Nov 10 18:44	20°8'55"27	46.90007 AU
				opposition	4320 Nov 12 18:14	20°8'53"10	-17°-21'-1
conjunction	4313 May 02 22:14	13°8'05"09	-16°-28'-1	direct	4321 Feb 02 07:23	19°8'53"09	
minimum elong	4313 May 02 22:14	13°8'05"09	16°28'02				
max. Earth dist.	4313 May 05 05:37	13°8'08"32	47.86561 AU	conjunction	4321 May 11 05:25	21°8'22"20	-16°-39'-7
retrograde	4313 Aug 13 15:48	14°8'40"24		minimum elong	4321 May 11 05:29	21°8'22"21	16°39'09
min. Earth dist.	4313 Nov 03 11:27	13°8'40"51	46.02107 AU	max. Earth dist.	4321 May 13 06:26	21°8'25"15	48.86920 AU
opposition	4313 Nov 05 16:41	13°8'38"17	-17°-11'-44	retrograde	4321 Aug 21 20:40	22°8'55"20	
direct	4314 Jan 26 01:32	12°8'37"30		min. Earth dist.	4321 Nov 12 01:07	21°8'56"22	47.01299 AU
				opposition	4321 Nov 14 00:47	21°8'54"05	-17°-21'-3
conjunction	4314 May 04 05:35	14°8'08"39	-16°-30'-32	direct	4322 Feb 03 13:46	20°8'54"11	
minimum elong	4314 May 04 05:36	14°8'08"39	16°30'34				
max. Earth dist.	4314 May 06 11:05	14°8'11"54	48.00314 AU	conjunction	4322 May 12 11:54	22°8'23"10	-16°-39'-6
	4314 Jun 10 11:24	15°8'		minimum elong	4322 May 12 11:56	22°8'23"10	16°39'08
retrograde	4314 Aug 14 22:16	15°8'43"36		max. Earth dist.	4322 May 14 12:06	22°8'26"01	48.98010 AU
	4314 Oct 21 21:45	15°8'		retrograde	4322 Aug 23 05:34	23°8'55"56	
min. Earth dist.	4314 Nov 04 19:51	14°8'44"06	46.15684 AU	min. Earth dist.	4322 Nov 13 09:41	22°8'56"59	47.12184 AU
opposition	4314 Nov 07 00:17	14°8'41"34	-17°-14'-3	opposition	4322 Nov 15 07:20	22°8'54"49	-17°-20'-47
direct	4315 Jan 27 10:10	13°8'40"54		direct	4323 Feb 04 18:36	21°8'55"02	
	4315 Apr 27 10:13	15°8'					
conjunction	4315 May 05 12:53	15°8'11"44	-16°-32'-43	conjunction	4323 May 13 18:27	23°8'23"48	-16°-38'-48
minimum elong	4315 May 05 12:54	15°8'11"44	16°32'44	minimum elong	4323 May 13 18:32	23°8'23"48	16°38'50
max. Earth dist.	4315 May 07 18:32	15°8'14"59	48.13636 AU	max. Earth dist.	4323 May 15 18:02	23°8'26"37	49.08673 AU
retrograde	4315 Aug 16 03:44	16°8'46"22		retrograde	4323 Aug 24 11:44	24°8'56"20	
min. Earth dist.	4315 Nov 06 04:46	15°8'46"54	46.28846 AU	min. Earth dist.	4323 Nov 14 16:35	23°8'57"29	47.22584 AU
opposition	4315 Nov 08 07:41	15°8'44"26	-17°-16'-3	opposition	4323 Nov 16 13:37	23°8'55"21	-17°-20'-14
	4315 Dec 21 04:43	15°8'		direct	4324 Feb 05 23:39	22°8'55"41	
direct	4316 Jan 28 21:06	14°8'43"52		conjunction	4324 May 14 00:49	24°8'24"14	-16°-38'-14
	4316 Mar 06 14:45	15°8'		minimum elong	4324 May 14 00:52	24°8'24"14	16°38'15
				max. Earth dist.	4324 May 15 22:11	24°8'26"55	49.18819 AU
conjunction	4316 May 05 19:59	16°8'14"23	-16°-34'-36	retrograde	4324 Aug 24 18:02	25°8'56"33	
minimum elong	4316 May 05 19:59	16°8'14"23	16°34'37	min. Earth dist.	4324 Nov 15 00:13	24°8'57"44	47.32459 AU
max. Earth dist.	4316 May 08 00:09	16°8'17"32	48.26590 AU	opposition	4324 Nov 16 19:53	24°8'55"40	-17°-19'-25
retrograde	4316 Aug 16 13:07	17°8'48"43		direct	4325 Feb 06 05:51	23°8'56"06	
min. Earth dist.	4316 Nov 06 11:37	16°8'49"21	46.41664 AU				
opposition	4316 Nov 08 14:43	16°8'46"53	-17°-17'-43	conjunction	4325 May 15 07:15	25°8'24"27	-16°-37'-25
direct	4317 Jan 29 03:14	15°8'46"24		minimum elong	4325 May 15 07:20	25°8'24"27	16°37'27
				max. Earth dist.	4325 May 17 04:20	25°8'27"06	49.28432 AU
conjunction	4317 May 07 02:53	17°8'16"38	-16°-36'-9	retrograde	4325 Aug 25 21:21	26°8'56"32	
minimum elong	4317 May 07 02:55	17°8'16"38	16°36'10	min. Earth dist.	4325 Nov 16 08:05	25°8'57"44	47.41784 AU
max. Earth dist.	4317 May 09 06:35	17°8'19"45	48.39221 AU	opposition	4325 Nov 18 02:06	25°8'55"44	-17°-18'-22
retrograde	4317 Aug 17 21:53	18°8'50"40		direct	4326 Feb 07 15:24	24°8'56"15	

conjunction	4326 May 16 13:21	26°8'24"23	-16°-36'-21	direct	4334 Feb 15 09:56	2°II48'20	
minimum elong	4326 May 16 13:25	26°8'24"23	16°36'22				
max. Earth dist.	4326 May 18 08:26	26°8'26"55	49.37529 AU	conjunction	4334 May 24 11:09	4°II15'05	-16°-18'-7
retrograde	4326 Aug 27 04:46	27°8'56"15		minimum elong	4334 May 24 11:17	4°II15'05	16°18'08
min. Earth dist.	4326 Nov 17 14:23	26°8'57"31	47.50610 AU	max. Earth dist.	4334 May 25 23:18	4°II17'10	49.96832 AU
opposition	4326 Nov 19 08:07	26°8'55"32	-17°-17'-3	retrograde	4334 Sep 04 05:08	5°II45'29	
direct	4327 Feb 08 21:34	25°8'56"07		min. Earth dist.	4334 Nov 25 18:05	4°II47'03	48.08196 AU
				opposition	4334 Nov 27 04:22	4°II45'26	-16°-56'-26
conjunction	4327 May 17 19:28	27°8'24"01	-16°-35'-2	direct	4335 Feb 16 13:37	3°II46'38	
minimum elong	4327 May 17 19:33	27°8'24"02	16°35'04				
max. Earth dist.	4327 May 19 13:46	27°8'26"30	49.46139 AU	conjunction	4335 May 25 16:51	5°II13'15	-16°-14'-38
retrograde	4327 Aug 28 13:11	28°8'55"40		minimum elong	4335 May 25 16:57	5°II13'15	16°14'39
min. Earth dist.	4327 Nov 18 22:22	27°8'56"54	47.58986 AU	max. Earth dist.	4335 May 27 04:45	5°II15'19	50.02676 AU
opposition	4327 Nov 20 13:58	27°8'55"02	-17°-15'-27	retrograde	4335 Sep 05 06:28	6°II43'30	
direct	4328 Feb 10 02:06	26°8'55"41		min. Earth dist.	4335 Nov 27 00:41	5°II45'05	48.13737 AU
				opposition	4335 Nov 28 09:25	5°II43'33	-16°-52'-38
conjunction	4328 May 18 01:31	28°8'23"23	-16°-33'-27	direct	4336 Feb 17 22:02	4°II44'49	
minimum elong	4328 May 18 01:36	28°8'23"23	16°33'28				
max. Earth dist.	4328 May 19 19:18	28°8'25"49	49.54347 AU	conjunction	4336 May 25 22:23	6°II11'18	-16°-10'-55
retrograde	4328 Aug 28 17:46	29°8'54"48		minimum elong	4336 May 25 22:31	6°II11'18	16°10'57
min. Earth dist.	4328 Nov 19 04:07	28°8'56"06	47.66972 AU	max. Earth dist.	4336 May 27 08:11	6°II13'15	50.08034 AU
opposition	4328 Nov 20 19:40	28°8'54"14	-17°-13'-35	retrograde	4336 Sep 05 11:30	7°II41'25	
direct	4329 Feb 10 07:28	27°8'54"57		min. Earth dist.	4336 Nov 27 06:21	6°II43'02	48.18767 AU
				opposition	4336 Nov 28 14:33	6°II41'32	-16°-48'-37
conjunction	4329 May 19 07:08	29°8'22"28	-16°-31'-35	direct	4337 Feb 18 04:51	5°II42'51	
minimum elong	4329 May 19 07:13	29°8'22"28	16°31'37				
max. Earth dist.	4329 May 20 23:13	29°8'24"48	49.62192 AU	conjunction	4337 May 27 03:45	7°II09'11	-16°-6'-59
	4329 Jun 15 22:40	0°II		minimum elong	4337 May 27 03:52	7°II09'12	16°07'00
retrograde	4329 Aug 29 22:17	0°II53'41		max. Earth dist.	4337 May 28 12:29	7°II11'04	50.12855 AU
	4329 Nov 16 00:54	30°R8		retrograde	4337 Sep 06 19:11	8°II39'09	
min. Earth dist.	4329 Nov 20 10:51	29°8'55"00	47.74632 AU	opposition	4337 Nov 29 19:47	7°II39'19	-16°-44'-23
opposition	4329 Nov 22 01:25	29°8'53"11	-17°-11'-26	min. Earth dist.	4337 Nov 28 13:49	7°II40'43	48.23260 AU
direct	4330 Feb 11 12:43	28°8'53"58		direct	4338 Feb 19 10:11	6°II40'40	
	4330 May 05 03:04	0°II					
conjunction	4330 May 20 12:59	0°II21'18	-16°-29'-26	conjunction	4338 May 28 09:14	8°II06'52	-16°-2'-50
minimum elong	4330 May 20 13:05	0°II21'19	16°29'28	minimum elong	4338 May 28 09:22	8°II06'52	16°02'52
max. Earth dist.	4330 May 22 05:26	0°II23'40	49.69730 AU	max. Earth dist.	4338 May 29 17:05	8°II08'41	50.17170 AU
retrograde	4330 Aug 31 01:19	1°II52'20		retrograde	4338 Sep 08 00:20	9°II36'40	
min. Earth dist.	4330 Nov 21 17:30	0°II53'41	47.81979 AU	min. Earth dist.	4338 Nov 29 18:59	8°II38'15	48.27249 AU
opposition	4330 Nov 23 06:57	0°II51'55	-17°-9'00	opposition	4338 Dec 01 00:37	8°II36'52	-16°-39'-54
	4331 Jan 18 00:53	30°R8		direct	4339 Feb 20 14:16	7°II38'14	
direct	4331 Feb 12 20:58	29°8'52"47					
	4331 Mar 10 08:07	0°II		conjunction	4339 May 29 14:29	9°II04'17	-15°-58'-27
				minimum elong	4339 May 29 14:37	9°II04'18	15°58'28
conjunction	4331 May 21 18:38	1°II19'57	-16°-27'-1	max. Earth dist.	4339 May 30 20:15	9°II05'59	50.21003 AU
minimum elong	4331 May 21 18:43	1°II19'57	16°27'03	retrograde	4339 Sep 09 05:51	10°II33'55	
max. Earth dist.	4331 May 23 09:31	1°II22'12	49.76980 AU	min. Earth dist.	4339 Dec 01 01:23	9°II35'27	48.30797 AU
retrograde	4331 Sep 01 07:40	2°II50'49		opposition	4339 Dec 02 05:32	9°II34'08	-16°-35'-12
min. Earth dist.	4331 Nov 22 22:50	1°II52'15	47.89036 AU	direct	4340 Feb 21 17:40	8°II35'32	
opposition	4331 Nov 24 12:23	1°II50'29	-17°-6'-16				
direct	4332 Feb 14 02:53	0°II51'26		conjunction	4340 May 29 19:45	10°II01'27	-15°-53'-50
				minimum elong	4340 May 29 19:54	10°II01'28	15°53'51
conjunction	4332 May 22 00:12	2°II18'26	-16°-24'-19	max. Earth dist.	4340 May 31 01:38	10°II03'09	50.24421 AU
minimum elong	4332 May 22 00:19	2°II18'26	16°24'20	retrograde	4340 Sep 09 07:37	11°II30'55	
max. Earth dist.	4332 May 23 14:31	2°II20'39	49.83922 AU	min. Earth dist.	4340 Dec 01 07:16	10°II32'26	48.33947 AU
retrograde	4332 Sep 01 15:33	3°II49'09		opposition	4340 Dec 02 10:14	10°II31'10	-16°-30'-14
min. Earth dist.	4332 Nov 23 05:58	2°II50'36	47.95778 AU	direct	4341 Feb 22 00:48	9°II32'35	
opposition	4332 Nov 24 17:47	2°II48'55	-17°-3'-15				
direct	4333 Feb 14 07:38	1°II49'57		conjunction	4341 May 31 00:50	10°II58'23	-15°-48'-58
				minimum elong	4341 May 31 00:59	10°II58'23	15°48'58
conjunction	4333 May 23 05:47	3°II16'48	-16°-21'-21	max. Earth dist.	4341 Jun 01 05:02	10°II59'59	50.27492 AU
minimum elong	4333 May 23 05:53	3°II16'49	16°21'22	retrograde	4341 Sep 10 12:06	12°II27'43	
max. Earth dist.	4333 May 24 19:42	3°II19'00	49.90561 AU	min. Earth dist.	4341 Dec 02 11:56	11°II29'16	48.36778 AU
retrograde	4333 Sep 02 22:40	4°II47'21		opposition	4341 Dec 03 14:54	11°II28'00	-16°-25'-1
min. Earth dist.	4333 Nov 24 11:22	3°II48'54	48.02181 AU	direct	4342 Feb 23 06:00	10°II29'26	
opposition	4333 Nov 25 23:02	3°II47'13	-16°-59'-58	conjunction	4342 Jun 01 05:51	11°II55'07	-15°-43'-51

minimum elong	4342 Jun 01 05:59	11°II55'08	15°43'52	opposition	4350 Dec 12 07:37	19°II57'26	-15°-26'-53
max. Earth dist.	4342 Jun 02 09:27	11°II56'42	50.30246 AU	min. Earth dist.	4350 Dec 11 14:56	19°II58'13	48.46254 AU
retrograde	4342 Sep 11 18:10	13°II24'21		direct	4351 Mar 03 21:17	18°II59'12	
opposition	4342 Dec 04 19:38	12°II24'41	-16°-19'-32				
min. Earth dist.	4342 Dec 03 18:26	12°II25'51	48.39303 AU	conjunction	4351 Jun 10 03:22	20°II24'30	-14°-47'00
direct	4343 Feb 24 11:35	11°II26'08		minimum elong	4351 Jun 10 03:33	20°II24'31	14°47'01
				max. Earth dist.	4351 Jun 10 20:30	20°II25'28	50.38771 AU
conjunction	4343 Jun 02 11:01	12°II51'44	-15°-38'-28	retrograde	4351 Sep 20 14:10	21°II53'08	
minimum elong	4343 Jun 02 11:11	12°II51'45	15°38'29	opposition	4351 Dec 13 11:48	20°II53'54	-15°-19'-19
max. Earth dist.	4343 Jun 03 14:16	12°II53'17	50.32721 AU	min. Earth dist.	4351 Dec 12 19:42	20°II54'39	48.44972 AU
retrograde	4343 Sep 13 00:26	14°II20'51		direct	4352 Mar 04 02:28	19°II55'39	
min. Earth dist.	4343 Dec 04 22:46	13°II22'25	48.41538 AU				
opposition	4343 Dec 06 00:02	13°II21'15	-16°-13'-48	conjunction	4352 Jun 10 08:22	21°II20'54	-14°-39'-36
direct	4344 Feb 25 14:18	12°II22'45		minimum elong	4352 Jun 10 08:32	21°II20'55	14°39'36
				max. Earth dist.	4352 Jun 11 00:32	21°II21'49	50.37381 AU
conjunction	4344 Jun 02 15:58	13°II48'17	-15°-32'-50	retrograde	4352 Sep 20 19:19	22°II49'29	
minimum elong	4344 Jun 02 16:07	13°II48'18	15°32'52	opposition	4352 Dec 13 16:13	21°II50'15	-15°-11'-31
max. Earth dist.	4344 Jun 03 17:27	13°II49'44	50.34904 AU	min. Earth dist.	4352 Dec 13 02:03	21°II50'55	48.43271 AU
retrograde	4344 Sep 13 06:57	15°II17'19		direct	4353 Mar 05 08:50	20°II51'59	
min. Earth dist.	4344 Dec 05 04:40	14°II18'53	48.43485 AU				
opposition	4344 Dec 06 04:41	14°II17'46	-16°-7'-48	conjunction	4353 Jun 11 13:11	22°II17'11	-14°-31'-58
direct	4345 Feb 25 16:15	13°II19'20		minimum elong	4353 Jun 11 13:21	22°II17'12	14°32'00
				max. Earth dist.	4353 Jun 12 04:56	22°II18'05	50.35618 AU
conjunction	4345 Jun 03 20:55	14°II44'49	-15°-26'-57	retrograde	4353 Sep 22 01:50	23°II45'43	
minimum elong	4345 Jun 03 21:05	14°II44'50	15°26'59	opposition	4353 Dec 14 20:26	22°II46'29	-15°-3'-28
max. Earth dist.	4345 Jun 04 22:36	14°II46'17	50.36786 AU	min. Earth dist.	4353 Dec 14 06:19	22°II47'08	48.41210 AU
retrograde	4345 Sep 14 09:02	16°II13'47		direct	4354 Mar 06 11:59	21°II48'12	
min. Earth dist.	4345 Dec 06 10:13	15°II15'23	48.45094 AU				
opposition	4345 Dec 07 09:16	15°II14'18	-16°-1'-32	conjunction	4354 Jun 12 18:03	23°II13'23	-14°-24'-6
direct	4346 Feb 26 22:57	14°II15'56		minimum elong	4354 Jun 12 18:14	23°II13'24	14°24'07
				max. Earth dist.	4354 Jun 13 07:54	23°II14'10	50.33511 AU
conjunction	4346 Jun 05 01:55	15°II41'23	-15°-20'-50	retrograde	4354 Sep 23 09:15	24°II41'51	
minimum elong	4346 Jun 05 02:04	15°II41'23	15°20'52	min. Earth dist.	4354 Dec 15 11:55	23°II43'13	48.38833 AU
max. Earth dist.	4346 Jun 06 01:50	15°II42'44	50.38323 AU	opposition	4354 Dec 16 00:40	23°II42'38	-14°-55'-11
retrograde	4346 Sep 15 13:25	17°II10'18		direct	4355 Mar 07 12:29	22°II44'19	
opposition	4346 Dec 08 13:39	16°II10'54	-15°-55'-3				
min. Earth dist.	4346 Dec 07 15:08	16°II11'57	48.46331 AU	conjunction	4355 Jun 13 23:05	24°II09'30	-14°-16'00
direct	4347 Feb 28 04:49	15°II12'34		minimum elong	4355 Jun 13 23:15	24°II09'31	14°16'02
				max. Earth dist.	4355 Jun 14 13:00	24°II10'17	50.31096 AU
conjunction	4347 Jun 06 07:03	16°II38'00	-15°-14'-29	retrograde	4355 Sep 24 11:50	25°II37'56	
minimum elong	4347 Jun 06 07:14	16°II38'00	15°14'31	opposition	4355 Dec 17 04:53	24°II38'43	-14°-46'-39
max. Earth dist.	4347 Jun 07 05:58	16°II39'18	50.39433 AU	min. Earth dist.	4355 Dec 16 16:59	24°II39'16	48.36138 AU
retrograde	4347 Sep 16 20:59	18°II06'53		direct	4356 Mar 07 18:15	23°II40'24	
opposition	4347 Dec 09 18:14	17°II07'33	-15°-48'-19				
min. Earth dist.	4347 Dec 08 21:57	17°II08'29	48.47105 AU	conjunction	4356 Jun 14 03:51	25°II05'35	-14°-7'-40
direct	4348 Feb 29 09:19	16°II09'16		minimum elong	4356 Jun 14 04:03	25°II05'36	14°07'41
				max. Earth dist.	4356 Jun 14 16:12	25°II06'17	50.28383 AU
conjunction	4348 Jun 06 12:11	17°II34'40	-15°-7'-55	retrograde	4356 Sep 24 14:05	26°II34'00	
minimum elong	4348 Jun 06 12:20	17°II34'41	15°07'56	opposition	4356 Dec 17 09:03	25°II34'48	-14°-37'-52
max. Earth dist.	4348 Jun 07 10:05	17°II35'55	50.40060 AU	min. Earth dist.	4356 Dec 16 21:25	25°II35'20	48.33144 AU
retrograde	4348 Sep 17 03:00	19°II03'30		direct	4357 Mar 09 00:12	24°II36'29	
opposition	4348 Dec 09 22:38	18°II04'13	-15°-41'-23				
min. Earth dist.	4348 Dec 09 02:43	18°II05'09	48.47355 AU	conjunction	4357 Jun 15 08:47	26°II01'41	-13°-59'-5
direct	4349 Mar 01 12:07	17°II05'59		minimum elong	4357 Jun 15 08:57	26°II01'42	13°59'07
				max. Earth dist.	4357 Jun 15 20:17	26°II02'20	50.25350 AU
conjunction	4349 Jun 07 17:14	18°II31'21	-15°-1'-9	retrograde	4357 Sep 25 19:23	27°II30'07	
minimum elong	4349 Jun 07 17:24	18°II31'21	15°01'11	opposition	4357 Dec 18 13:22	26°II30'55	-14°-28'-51
max. Earth dist.	4349 Jun 08 12:47	18°II32'27	50.40150 AU	min. Earth dist.	4357 Dec 18 03:36	26°II31'22	48.29817 AU
retrograde	4349 Sep 18 09:06	20°II00'07		direct	4358 Mar 10 05:48	25°II32'37	
min. Earth dist.	4349 Dec 10 09:09	19°II01'43	48.47072 AU				
opposition	4349 Dec 11 03:11	19°II00'52	-15°-34'-14	conjunction	4358 Jun 16 13:47	26°II57'51	-13°-50'-16
direct	4350 Mar 02 14:39	18°II02'39		minimum elong	4358 Jun 16 13:59	26°II57'51	13°50'18
				max. Earth dist.	4358 Jun 17 00:43	26°II58'28	50.21977 AU
conjunction	4350 Jun 08 22:21	19°II27'58	-14°-54'-11	retrograde	4358 Sep 27 01:45	28°II26'17	
minimum elong	4350 Jun 08 22:31	19°II27'59	14°54'11	opposition	4358 Dec 19 17:32	27°II27'07	-14°-19'-36
max. Earth dist.	4350 Jun 09 17:35	19°II29'04	50.39709 AU	min. Earth dist.	4358 Dec 19 07:57	27°II27'34	48.26101 AU
retrograde	4350 Sep 19 10:31	20°II56'40		direct	4359 Mar 11 09:01	26°II28'48	

conjunction	4359 Jun 17 18:50	27°II54'05	-13°-41'-14	direct	4367 Mar 18 18:59	3°☾59'32	
minimum elong	4359 Jun 17 19:01	27°II54'06	13°41'15				
max. Earth dist.	4359 Jun 18 03:32	27°II54'35	50.18172 AU	conjunction	4367 Jun 25 12:07	5°☾25'20	-12°-21'-28
retrograde	4359 Sep 28 08:39	29°II22'33		minimum elong	4367 Jun 25 12:19	5°☾25'20	12°21'28
opposition	4359 Dec 20 21:45	28°II23'24	-14°-10'-7	max. Earth dist.	4367 Jun 25 11:15	5°☾25'17	49.70359 AU
min. Earth dist.	4359 Dec 20 14:09	28°II23'45	48.21933 AU	retrograde	4367 Oct 05 20:47	6°☾54'04	
direct	4360 Mar 11 11:03	27°II25'05		opposition	4367 Dec 28 08:00	5°☾54'43	-12°-46'-31
				min. Earth dist.	4367 Dec 28 09:39	5°☾54'38	47.71310 AU
conjunction	4360 Jun 18 00:06	28°II50'25	-13°-32'00	direct	4368 Mar 19 01:25	4°☾56'02	
minimum elong	4360 Jun 18 00:17	28°II50'26	13°32'02				
max. Earth dist.	4360 Jun 18 08:23	28°II50'53	50.13878 AU	conjunction	4368 Jun 25 17:22	6°☾21'56	-12°-10'-28
	4360 Aug 16 02:18	0°☾		minimum elong	4368 Jun 25 17:33	6°☾21'56	12°10'29
retrograde	4360 Sep 28 11:40	0°☾18'53		max. Earth dist.	4368 Jun 25 16:07	6°☾21'51	49.62740 AU
	4360 Nov 11 09:31	30°RII		retrograde	4368 Oct 06 03:57	7°☾50'45	
opposition	4360 Dec 21 02:05	29°II19'45	-14°00'-26	opposition	4368 Dec 28 12:18	6°☾51'23	-12°-35'00
min. Earth dist.	4360 Dec 20 19:48	29°II20'02	48.17237 AU	min. Earth dist.	4368 Dec 28 13:45	6°☾51'19	47.63402 AU
direct	4361 Mar 12 16:19	28°II21'25		direct	4369 Mar 20 04:25	5°☾52'40	
conjunction	4361 Jun 19 05:06	29°II46'48	-13°-22'-34	conjunction	4369 Jun 26 22:25	7°☾18'41	-11°-59'-14
minimum elong	4361 Jun 19 05:17	29°II46'49	13°22'34	minimum elong	4369 Jun 26 22:37	7°☾18'42	11°59'15
max. Earth dist.	4361 Jun 19 11:07	29°II47'09	50.09054 AU	max. Earth dist.	4369 Jun 26 19:24	7°☾18'31	49.54834 AU
	4361 Jun 28 23:55	0°☾		retrograde	4369 Oct 07 11:30	8°☾47'37	
retrograde	4361 Sep 29 15:48	1°☾15'18		opposition	4369 Dec 29 16:48	7°☾48'14	-12°-23'-14
opposition	4361 Dec 22 06:26	0°☾16'08	-13°-50'-32	min. Earth dist.	4369 Dec 29 19:50	7°☾48'06	47.55204 AU
min. Earth dist.	4361 Dec 22 00:55	0°☾16'24	48.12001 AU	direct	4370 Mar 21 06:01	6°☾49'29	
	4362 Jan 05 20:53	30°RII					
direct	4362 Mar 13 21:17	29°II17'46		conjunction	4370 Jun 28 03:54	8°☾15'38	-11°-47'-45
	4362 May 18 00:06	0°☾		minimum elong	4370 Jun 28 04:05	8°☾15'39	11°47'47
				max. Earth dist.	4370 Jun 28 00:49	8°☾15'28	49.46613 AU
conjunction	4362 Jun 20 10:21	0°☾43'13	-13°-12'-55	retrograde	4370 Oct 08 15:36	9°☾44'41	
minimum elong	4362 Jun 20 10:33	0°☾43'13	13°12'57	opposition	4370 Dec 30 21:06	8°☾45'17	-12°-11'-13
max. Earth dist.	4362 Jun 20 15:03	0°☾43'28	50.03678 AU	min. Earth dist.	4370 Dec 31 01:07	8°☾45'06	47.46651 AU
retrograde	4362 Sep 30 20:32	2°☾11'44		direct	4371 Mar 22 10:33	7°☾46'29	
opposition	4362 Dec 23 10:44	1°☾12'33	-13°-40'-26				
min. Earth dist.	4362 Dec 23 07:32	1°☾12'42	48.06229 AU	conjunction	4371 Jun 29 09:22	9°☾12'49	-11°-36'-3
direct	4363 Mar 15 03:16	0°☾14'08		minimum elong	4371 Jun 29 09:34	9°☾12'49	11°36'05
				max. Earth dist.	4371 Jun 29 04:20	9°☾12'31	49.38016 AU
conjunction	4363 Jun 21 15:38	1°☾39'37	-13°-3'-4	retrograde	4371 Oct 09 19:53	10°☾41'58	
minimum elong	4363 Jun 21 15:49	1°☾39'37	13°03'06	opposition	4372 Jan 01 01:33	9°☾42'33	-11°-58'-58
max. Earth dist.	4363 Jun 21 19:28	1°☾39'50	49.97804 AU	min. Earth dist.	4372 Jan 01 06:20	9°☾42'19	47.37691 AU
retrograde	4363 Oct 02 02:27	3°☾08'09		direct	4372 Mar 22 15:41	8°☾43'42	
opposition	4363 Dec 24 14:57	2°☾08'57	-13°-30'-8				
min. Earth dist.	4363 Dec 24 12:02	2°☾09'05	47.99977 AU	conjunction	4372 Jun 29 14:55	10°☾10'11	-11°-24'-8
direct	4364 Mar 15 07:07	1°☾10'28		minimum elong	4372 Jun 29 15:06	10°☾10'12	11°24'09
				max. Earth dist.	4372 Jun 29 08:37	10°☾09'49	49.28954 AU
conjunction	4364 Jun 21 20:37	2°☾36'01	-12°-53'-1	retrograde	4372 Oct 10 00:05	11°☾39'28	
minimum elong	4364 Jun 21 20:48	2°☾36'01	12°53'03	opposition	4373 Jan 01 06:13	10°☾40'01	-11°-46'-30
max. Earth dist.	4364 Jun 21 22:15	2°☾36'06	49.91471 AU	min. Earth dist.	4373 Jan 01 13:12	10°☾39'41	47.28239 AU
retrograde	4364 Oct 02 10:03	4°☾04'35		direct	4373 Mar 23 22:02	9°☾41'06	
opposition	4364 Dec 24 19:15	3°☾05'20	-13°-19'-35				
min. Earth dist.	4364 Dec 24 18:00	3°☾05'23	47.93310 AU	conjunction	4373 Jun 30 20:39	11°☾07'44	-11°-12'00
direct	4365 Mar 16 08:05	2°☾06'48		minimum elong	4373 Jun 30 20:51	11°☾07'44	11°12'02
				max. Earth dist.	4373 Jun 30 13:23	11°☾07'19	49.19400 AU
conjunction	4365 Jun 23 01:49	3°☾32'25	-12°-42'-44	retrograde	4373 Oct 11 05:56	12°☾37'08	
minimum elong	4365 Jun 23 02:01	3°☾32'25	12°42'45	opposition	4374 Jan 02 10:45	11°☾37'38	-11°-33'-49
max. Earth dist.	4365 Jun 23 03:29	3°☾32'30	49.84755 AU	min. Earth dist.	4374 Jan 02 18:08	11°☾37'17	47.18272 AU
retrograde	4365 Oct 03 13:41	5°☾01'01		direct	4374 Mar 25 03:15	10°☾38'38	
opposition	4365 Dec 25 23:28	4°☾01'44	-13°-8'-49				
min. Earth dist.	4365 Dec 25 23:02	4°☾01'45	47.86279 AU	conjunction	4374 Jul 02 02:22	12°☾05'24	-10°-59'-40
direct	4366 Mar 17 13:09	3°☾03'09		minimum elong	4374 Jul 02 02:33	12°☾05'24	10°59'41
				max. Earth dist.	4374 Jul 01 16:33	12°☾04'50	49.09322 AU
conjunction	4366 Jun 24 06:54	4°☾28'50	-12°-32'-13	retrograde	4374 Oct 12 15:08	13°☾34'55	
minimum elong	4366 Jun 24 07:04	4°☾28'51	12°32'14	opposition	4375 Jan 03 15:31	12°☾35'20	-11°-20'-55
max. Earth dist.	4366 Jun 24 06:54	4°☾28'50	49.77713 AU	min. Earth dist.	4375 Jan 04 00:53	12°☾34'53	47.07797 AU
retrograde	4366 Oct 04 16:20	5°☾57'30		direct	4375 Mar 26 04:49	11°☾36'14	
opposition	4366 Dec 27 03:43	4°☾58'11	-12°-57'-47				
min. Earth dist.	4366 Dec 27 03:43	4°☾58'11	47.78942 AU	conjunction	4375 Jul 03 08:17	13°☾03'09	-10°-47'-7

minimum elong	4375 Jul 03 08:28	13° \mathring{U} 03'10	10°47'08	opposition	4384 Jan 12 11:59	21° \mathring{U} 20'56	-9°-13'-44
max. Earth dist.	4375 Jul 02 22:08	13° \mathring{U} 02'34	48.98747 AU	min. Earth dist.	4384 Jan 13 05:37	21° \mathring{U} 20'05	45.97305 AU
retrograde	4375 Oct 13 20:35	14° \mathring{U} 32'46		direct	4384 Apr 03 03:47	20° \mathring{U} 20'56	
opposition	4376 Jan 04 20:07	13° \mathring{U} 33'06	-11°-7'-47				
min. Earth dist.	4376 Jan 05 06:33	13° \mathring{U} 32'37	46.96841 AU	conjunction	4384 Jul 11 15:38	21° \mathring{U} 49'51	-8°-43'-27
direct	4376 Mar 26 09:23	12° \mathring{U} 33'54		minimum elong	4384 Jul 11 15:49	21° \mathring{U} 49'51	8°43'28
				max. Earth dist.	4384 Jul 10 18:32	21° \mathring{U} 48'37	47.88014 AU
conjunction	4376 Jul 03 14:03	14° \mathring{U} 00'58	-10°-34'-20	retrograde	4384 Oct 22 03:43	23° \mathring{U} 21'11	
minimum elong	4376 Jul 03 14:14	14° \mathring{U} 00'58	10°34'21	opposition	4385 Jan 12 17:34	22° \mathring{U} 20'51	-8°-58'-21
max. Earth dist.	4376 Jul 03 01:59	14° \mathring{U} 00'16	48.87738 AU	min. Earth dist.	4385 Jan 13 13:17	22° \mathring{U} 19'54	45.83270 AU
retrograde	4376 Oct 14 00:56	15° \mathring{U} 30'42		direct	4385 Apr 04 06:02	21° \mathring{U} 20'45	
opposition	4377 Jan 05 00:50	14° \mathring{U} 30'56	-10°-54'-25				
min. Earth dist.	4377 Jan 05 11:57	14° \mathring{U} 30'25	46.85490 AU	conjunction	4385 Jul 12 22:29	22° \mathring{U} 49'57	-8°-28'-31
direct	4377 Mar 27 14:32	13° \mathring{U} 31'37		minimum elong	4385 Jul 12 22:39	22° \mathring{U} 49'58	8°28'31
				max. Earth dist.	4385 Jul 12 00:58	22° \mathring{U} 48'42	47.73859 AU
conjunction	4377 Jul 04 19:49	14° \mathring{U} 58'50	-10°-21'-19	retrograde	4385 Oct 23 11:41	24° \mathring{U} 21'32	
minimum elong	4377 Jul 04 19:59	14° \mathring{U} 58'51	10°21'21	opposition	4386 Jan 13 23:13	23° \mathring{U} 21'07	-8°-42'-44
max. Earth dist.	4377 Jul 04 06:43	14° \mathring{U} 58'05	48.76337 AU	min. Earth dist.	4386 Jan 14 19:57	23° \mathring{U} 20'07	45.68711 AU
retrograde	4377 Oct 15 04:06	16° \mathring{U} 28'43		direct	4386 Apr 05 10:26	22° \mathring{U} 20'54	
opposition	4378 Jan 06 05:44	15° \mathring{U} 28'51	-10°-40'-48	max. Earth dist.	4386 Jul 13 05:35	23° \mathring{U} 49'00	47.59188 AU
min. Earth dist.	4378 Jan 06 18:36	15° \mathring{U} 28'14	46.73775 AU				
direct	4378 Mar 28 22:15	14° \mathring{U} 29'25		conjunction	4386 Jul 14 05:28	23° \mathring{U} 50'23	-8°-13'-21
				minimum elong	4386 Jul 14 05:39	23° \mathring{U} 50'24	8°13'23
conjunction	4378 Jul 06 01:50	15° \mathring{U} 56'49	-10°-8'-4	retrograde	4386 Oct 24 19:05	25° \mathring{U} 22'13	
minimum elong	4378 Jul 06 02:01	15° \mathring{U} 56'49	10°08'05	opposition	4387 Jan 15 04:49	24° \mathring{U} 21'41	-8°-26'-52
max. Earth dist.	4378 Jul 05 12:19	15° \mathring{U} 56'02	48.64615 AU	min. Earth dist.	4387 Jan 16 02:45	24° \mathring{U} 20'38	45.53649 AU
retrograde	4378 Oct 16 10:05	17° \mathring{U} 26'50		direct	4387 Apr 06 15:23	23° \mathring{U} 21'19	
opposition	4379 Jan 07 10:24	16° \mathring{U} 26'53	-10°-26'-56	max. Earth dist.	4387 Jul 14 11:24	24° \mathring{U} 49'38	47.44008 AU
min. Earth dist.	4379 Jan 07 23:13	16° \mathring{U} 26'17	46.61753 AU				
direct	4379 Mar 30 03:22	15° \mathring{U} 27'20		conjunction	4387 Jul 15 12:39	24° \mathring{U} 51'07	-7°-57'-58
				minimum elong	4387 Jul 15 12:49	24° \mathring{U} 51'07	7°57'59
conjunction	4379 Jul 07 07:50	16° \mathring{U} 54'56	-9°-54'-35	retrograde	4387 Oct 25 22:19	26° \mathring{U} 23'11	
minimum elong	4379 Jul 07 08:00	16° \mathring{U} 54'57	9°54'37	opposition	4388 Jan 16 10:42	25° \mathring{U} 22'32	-8°-10'-45
max. Earth dist.	4379 Jul 06 16:21	16° \mathring{U} 54'03	48.52592 AU	min. Earth dist.	4388 Jan 17 10:33	25° \mathring{U} 21'23	45.38102 AU
retrograde	4379 Oct 17 18:20	18° \mathring{U} 25'07		direct	4388 Apr 07 00:47	24° \mathring{U} 22'01	
opposition	4380 Jan 08 15:25	17° \mathring{U} 25'06	-10°-12'-49				
min. Earth dist.	4380 Jan 09 05:51	17° \mathring{U} 24'25	46.49457 AU	conjunction	4388 Jul 15 19:43	25° \mathring{U} 52'05	-7°-42'-20
direct	4380 Mar 30 05:43	16° \mathring{U} 25'27		minimum elong	4388 Jul 15 19:52	25° \mathring{U} 52'06	7°42'22
				max. Earth dist.	4388 Jul 14 17:42	25° \mathring{U} 50'33	47.28386 AU
conjunction	4380 Jul 07 13:53	17° \mathring{U} 53'16	-9°-40'-51	retrograde	4388 Oct 26 04:05	27° \mathring{U} 24'25	
minimum elong	4380 Jul 07 14:05	17° \mathring{U} 53'16	9°40'52	opposition	4389 Jan 16 16:30	26° \mathring{U} 23'38	-7°-54'-24
max. Earth dist.	4380 Jul 06 22:31	17° \mathring{U} 52'23	48.40300 AU	min. Earth dist.	4389 Jan 17 16:33	26° \mathring{U} 22'28	45.22140 AU
retrograde	4380 Oct 18 00:04	19° \mathring{U} 23'38		direct	4389 Apr 08 08:07	25° \mathring{U} 22'56	
opposition	4381 Jan 08 20:27	18° \mathring{U} 23'33	-9°-58'-26	max. Earth dist.	4389 Jul 15 22:49	26° \mathring{U} 51'39	47.12363 AU
min. Earth dist.	4381 Jan 09 11:19	18° \mathring{U} 22'50	46.36885 AU				
direct	4381 Mar 31 10:43	17° \mathring{U} 23'48		conjunction	4389 Jul 17 02:57	26° \mathring{U} 53'19	-7°-26'-28
				minimum elong	4389 Jul 17 03:07	26° \mathring{U} 53'19	7°26'29
conjunction	4381 Jul 08 20:02	18° \mathring{U} 51'52	-9°-26'-51	retrograde	4389 Oct 27 13:22	28° \mathring{U} 25'55	
minimum elong	4381 Jul 08 20:12	18° \mathring{U} 51'52	9°26'53	opposition	4390 Jan 17 22:29	27° \mathring{U} 24'59	-7°-37'-47
max. Earth dist.	4381 Jul 08 03:00	18° \mathring{U} 50'53	48.27749 AU	min. Earth dist.	4390 Jan 19 00:28	27° \mathring{U} 23'43	45.05822 AU
retrograde	4381 Oct 19 06:00	20° \mathring{U} 22'26		direct	4390 Apr 09 11:35	26° \mathring{U} 24'07	
opposition	4382 Jan 10 01:30	19° \mathring{U} 22'17	-9°-43'-47	max. Earth dist.	4390 Jul 17 06:14	27° \mathring{U} 53'08	46.96005 AU
min. Earth dist.	4382 Jan 10 16:56	19° \mathring{U} 21'33	46.24049 AU				
direct	4382 Apr 01 15:42	18° \mathring{U} 22'28		conjunction	4390 Jul 18 10:28	27° \mathring{U} 54'48	-7°-10'-21
max. Earth dist.	4382 Jul 09 08:30	19° \mathring{U} 49'46	48.14890 AU	minimum elong	4390 Jul 18 10:37	27° \mathring{U} 54'48	7°10'23
				retrograde	4390 Oct 28 21:11	29° \mathring{U} 27'41	
conjunction	4382 Jul 10 02:25	19° \mathring{U} 50'48	-9°-12'-37	opposition	4391 Jan 19 04:35	28° \mathring{U} 26'36	-7°-20'-54
minimum elong	4382 Jul 10 02:37	19° \mathring{U} 50'49	9°12'39	min. Earth dist.	4391 Jan 20 06:58	28° \mathring{U} 25'18	44.89182 AU
retrograde	4382 Oct 20 11:07	21° \mathring{U} 21'37		direct	4391 Apr 10 17:30	27° \mathring{U} 25'33	
opposition	4383 Jan 11 06:48	20° \mathring{U} 21'25	-9°-28'-53	max. Earth dist.	4391 Jul 18 11:55	28° \mathring{U} 54'47	46.79354 AU
min. Earth dist.	4383 Jan 12 00:09	20° \mathring{U} 20'35	46.10876 AU				
direct	4383 Apr 02 22:09	19° \mathring{U} 21'30		conjunction	4391 Jul 19 17:57	28° \mathring{U} 56'34	-6°-53'-59
				minimum elong	4391 Jul 19 18:06	28° \mathring{U} 56'34	6°54'00
conjunction	4383 Jul 11 09:00	20° \mathring{U} 50'07	-8°-58'-9	retrograde	4391 Sep 06 18:09	0° \mathring{U}	
minimum elong	4383 Jul 11 09:10	20° \mathring{U} 50'08	8°58'10		4391 Oct 30 06:01	0° \mathring{U} 29'44	
max. Earth dist.	4383 Jul 10 14:17	20° \mathring{U} 49'02	48.01674 AU		4391 Dec 23 06:52	30° \mathring{R} \mathring{U}	
retrograde	4383 Oct 21 17:32	22° \mathring{U} 21'12		opposition	4392 Jan 20 10:45	29° \mathring{U} 28'30	-7°-3'-44

min. Earth dist.	4392 Jan 21 13:51	29° 5 27'10	44.72280 AU	min. Earth dist.	4400 Jan 30 07:40	7° 0 57'41	43.25460 AU
direct	4392 Apr 10 22:26	28° 5 27'16		direct	4400 Apr 19 06:37	6° 0 56'50	
max. Earth dist.	4392 Jul 18 18:58	29° 5 56'50	46.62439 AU	max. Earth dist.	4400 Jul 27 06:11	8° 0 29'08	45.14965 AU
conjunction	4392 Jul 20 01:40	29° 5 58'39	-6°-37'-22	conjunction	4400 Jul 28 22:39	8° 0 31'37	-4°-15'-13
minimum elong	4392 Jul 20 01:48	29° 5 58'40	6°37'24	minimum elong	4400 Jul 28 22:45	8° 0 31'37	4°15'13
	4392 Jul 21 00:20	0° 0		retrograde	4400 Nov 08 08:45	10° 0 08'11	
retrograde	4392 Oct 30 12:26	1° 0 32'08		opposition	4401 Jan 29 02:42	9° 0 05'32	-4°-17'-9
opposition	4393 Jan 20 17:14	0° 0 30'45	-6°-46'-18	min. Earth dist.	4401 Jan 30 15:44	9° 0 03'39	43.05279 AU
min. Earth dist.	4393 Jan 21 21:47	0° 0 29'21	44.55127 AU	direct	4401 Apr 20 14:20	8° 0 02'35	
	4393 Feb 16 22:53	30° 0 R 5		max. Earth dist.	4401 Jul 28 13:28	9° 0 35'14	44.94712 AU
direct	4393 Apr 12 06:02	29° 5 29'22					
	4393 Jun 04 17:06	0° 0		conjunction	4401 Jul 30 07:59	9° 0 37'51	-3°-56'-19
max. Earth dist.	4393 Jul 20 02:10	0° 0 59'15	46.45294 AU	minimum elong	4401 Jul 30 08:05	9° 0 37'52	3°56'20
				retrograde	4401 Nov 09 21:08	11° 0 14'51	
conjunction	4393 Jul 21 09:26	1° 0 01'07	-6°-20'-29	opposition	4402 Jan 30 10:44	10° 0 12'00	-3°-57'-18
minimum elong	4393 Jul 21 09:35	1° 0 01'07	6°20'30	min. Earth dist.	4402 Feb 01 00:59	10° 0 10'03	42.84793 AU
retrograde	4393 Oct 31 18:13	2° 0 34'55		direct	4402 Apr 21 19:51	9° 0 08'48	
opposition	4394 Jan 21 23:46	1° 0 33'25	-6°-28'-36	max. Earth dist.	4402 Jul 29 22:47	10° 0 41'56	44.74156 AU
min. Earth dist.	4394 Jan 23 04:11	1° 0 32'01	44.37730 AU				
direct	4394 Apr 13 14:07	0° 0 31'52		conjunction	4402 Jul 31 17:49	10° 0 44'35	-3°-37'-9
max. Earth dist.	4394 Jul 21 08:18	2° 0 02'01	46.27872 AU	minimum elong	4402 Jul 31 17:54	10° 0 44'36	3°37'10
				retrograde	4402 Nov 11 06:55	12° 0 22'02	
conjunction	4394 Jul 22 17:31	2° 0 04'00	-6°-3'-20	opposition	4403 Jan 31 18:52	11° 0 18'58	-3°-37'-9
minimum elong	4394 Jul 22 17:39	2° 0 04'00	6°03'22	min. Earth dist.	4403 Feb 02 10:22	11° 0 16'57	42.64036 AU
retrograde	4394 Nov 02 03:17	3° 0 38'11		direct	4403 Apr 23 04:45	10° 0 15'32	
opposition	4395 Jan 23 06:27	2° 0 36'32	-6°-10'-37	max. Earth dist.	4403 Jul 31 07:47	11° 0 49'07	44.53371 AU
min. Earth dist.	4395 Jan 24 12:49	2° 0 35'02	44.20047 AU				
direct	4395 Apr 14 19:35	1° 0 34'50		conjunction	4403 Aug 02 03:43	11° 0 51'51	-3°-17'-44
max. Earth dist.	4395 Jul 22 16:39	3° 0 05'23	46.10132 AU	minimum elong	4403 Aug 02 03:48	11° 0 51'51	3°17'46
				retrograde	4403 Nov 12 15:28	13° 0 29'46	
conjunction	4395 Jul 24 01:56	3° 0 07'23	-5°-45'-56	opposition	4404 Feb 02 03:15	12° 0 26'30	-3°-16'-44
minimum elong	4395 Jul 24 02:04	3° 0 07'23	5°45'58	min. Earth dist.	4404 Feb 03 18:42	12° 0 24'29	42.43080 AU
retrograde	4395 Nov 03 13:01	4° 0 41'56		direct	4404 Apr 23 14:15	11° 0 22'50	
opposition	4396 Jan 24 13:21	3° 0 40'10	-5°-52'-22	max. Earth dist.	4404 Jul 31 16:18	12° 0 56'51	44.32381 AU
min. Earth dist.	4396 Jan 25 20:20	3° 0 38'37	44.02008 AU				
direct	4396 Apr 15 00:50	2° 0 38'17		conjunction	4404 Aug 02 13:42	12° 0 59'42	-2°-58'-3
max. Earth dist.	4396 Jul 22 22:44	4° 0 09'08	45.92005 AU	minimum elong	4404 Aug 02 13:47	12° 0 59'42	2°58'04
				retrograde	4404 Nov 13 00:02	14° 0 38'08	
conjunction	4396 Jul 24 10:16	4° 0 11'16	-5°-28'-17	opposition	4405 Feb 02 12:03	13° 0 34'40	-2°-56'-2
minimum elong	4396 Jul 24 10:23	4° 0 11'16	5°28'18	min. Earth dist.	4405 Feb 04 05:04	13° 0 32'33	42.21944 AU
retrograde	4396 Nov 03 23:54	5° 0 46'13		direct	4405 Apr 24 23:19	12° 0 30'46	
opposition	4397 Jan 24 20:29	4° 0 44'17	-5°-33'-51	max. Earth dist.	4405 Aug 02 03:01	14° 0 05'21	44.11225 AU
min. Earth dist.	4397 Jan 26 04:47	4° 0 42'41	43.83561 AU				
direct	4397 Apr 16 05:37	3° 0 42'14		conjunction	4405 Aug 04 00:12	14° 0 08'11	-2°-38'-6
max. Earth dist.	4397 Jul 24 06:26	5° 0 13'26	45.73422 AU	minimum elong	4405 Aug 04 00:16	14° 0 08'12	2°38'08
					4405 Sep 09 03:54	15° 0	
conjunction	4397 Jul 25 19:07	5° 0 15'39	-5°-10'-23	retrograde	4405 Nov 14 10:45	15° 0 47'10	
minimum elong	4397 Jul 25 19:14	5° 0 15'40	5°10'25		4406 Jan 21 09:03	15° 0 R 0	
retrograde	4397 Nov 05 06:56	6° 0 50'59		opposition	4406 Feb 03 20:51	14° 0 43'30	-2°-35'-2
opposition	4398 Jan 26 03:49	5° 0 48'55	-5°-15'-5	min. Earth dist.	4406 Feb 05 13:49	14° 0 41'23	42.00638 AU
min. Earth dist.	4398 Jan 27 13:53	5° 0 47'12	43.64643 AU	direct	4406 Apr 26 06:49	13° 0 39'23	
direct	4398 Apr 17 14:51	4° 0 46'39			4406 Jul 24 21:17	15° 0	
max. Earth dist.	4398 Jul 25 14:13	6° 0 18'13	45.54381 AU	max. Earth dist.	4406 Aug 03 11:41	15° 0 14'26	43.89885 AU
conjunction	4398 Jul 27 04:09	6° 0 20'31	-4°-52'-15	conjunction	4406 Aug 05 10:54	15° 0 17'25	-2°-17'-54
minimum elong	4398 Jul 27 04:15	6° 0 20'32	4°52'16	minimum elong	4406 Aug 05 10:58	15° 0 17'25	2°17'55
retrograde	4398 Nov 06 14:16	7° 0 56'15		retrograde	4406 Nov 16 00:20	16° 0 56'57	
opposition	4399 Jan 27 11:15	6° 0 54'00	-4°-56'-2	opposition	4407 Feb 05 06:02	15° 0 53'06	-2°-13'-46
min. Earth dist.	4399 Jan 28 21:46	6° 0 52'16	43.45267 AU	min. Earth dist.	4407 Feb 07 00:23	15° 0 50'55	41.79139 AU
direct	4399 Apr 19 00:03	5° 0 51'31			4407 Mar 27 11:01	15° 0 R 0	
max. Earth dist.	4399 Jul 26 21:03	7° 0 23'23	45.34873 AU	direct	4407 Apr 27 12:08	14° 0 48'45	
					4407 May 28 12:57	15° 0	
conjunction	4399 Jul 28 13:16	7° 0 25'51	-4°-33'-51	max. Earth dist.	4407 Aug 04 22:25	16° 0 24'24	43.68301 AU
minimum elong	4399 Jul 28 13:22	7° 0 25'51	4°33'53				
retrograde	4399 Nov 07 23:35	9° 0 01'59		conjunction	4407 Aug 06 22:00	16° 0 27'25	-1°-57'-25
opposition	4400 Jan 28 18:56	7° 0 59'32	-4°-36'-44	minimum elong	4407 Aug 06 22:03	16° 0 27'25	1°57'27
























































































































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min. Earth dist.	4408 Feb 08 10:55	17°00'11"	41.57367 AU	retrograde	4415 Nov 27 16:11	28°00'00"	
direct	4408 Apr 27 21:42	15°00'58"		opposition	4416 Feb 16 06:06	26°00'53"	1°09'59"
max. Earth dist.	4408 Aug 05 08:26	17°00'35"	43.46426 AU	min. Earth dist.	4416 Feb 18 09:05	26°00'51"	39.71266 AU
				direct	4416 May 07 13:09	25°00'46"	
conjunction	4408 Aug 07 09:22	17°00'38"	-1°-36'-42"	max. Earth dist.	4416 Aug 15 05:21	27°00'27"	41.59249 AU
minimum elong	4408 Aug 07 09:24	17°00'38"	1°36'43"				
retrograde	4408 Nov 18 00:42	19°00'18"		conjunction	4416 Aug 17 16:11	27°00'31"	1°18'01"
opposition	4409 Feb 07 01:12	18°00'14"	-1°-30'-23"	minimum elong	4416 Aug 17 16:09	27°00'31"	1°18'00"
min. Earth dist.	4409 Feb 08 21:11	18°00'12"	41.35281 AU	retrograde	4416 Nov 28 06:32	29°00'17"	
direct	4409 Apr 29 08:30	17°00'09"		opposition	4417 Feb 16 18:28	28°00'11"	1°33'58"
max. Earth dist.	4409 Aug 06 18:18	18°00'46"	43.24177 AU	min. Earth dist.	4417 Feb 18 22:59	28°00'08"	39.47040 AU
				direct	4417 May 08 23:11	27°00'03"	
conjunction	4409 Aug 08 21:06	18°00'49"	-1°-15'-43"	max. Earth dist.	4417 Aug 16 20:03	28°00'45"	41.34942 AU
minimum elong	4409 Aug 08 21:08	18°00'49"	1°15'44"				
retrograde	4409 Nov 19 11:40	20°00'31"		conjunction	4417 Aug 19 06:38	28°00'49"	1°40'56"
opposition	4410 Feb 08 11:25	19°00'26"	-1°-8'-17"	minimum elong	4417 Aug 19 06:35	28°00'49"	1°40'56"
min. Earth dist.	4410 Feb 10 09:36	19°00'24"	41.12807 AU		4417 Oct 05 16:54	0°00'00"	
direct	4410 Apr 30 19:23	18°00'21"		retrograde	4417 Nov 29 20:43	0°00'00"	
max. Earth dist.	4410 Aug 08 05:54	19°00'58"	43.01538 AU		4418 Jan 25 01:51	30°00'00"	
				opposition	4418 Feb 18 07:11	29°00'29"	1°58'11"
conjunction	4410 Aug 10 09:19	20°00'02"	0°-54'-30"	min. Earth dist.	4418 Feb 20 11:44	29°00'26"	39.22724 AU
minimum elong	4410 Aug 10 09:20	20°00'02"	0°54'31"	direct	4418 May 10 11:17	28°00'21"	
retrograde	4410 Nov 20 21:39	21°00'44"			4418 Aug 15 17:15	0°00'00"	
opposition	4411 Feb 09 21:41	20°00'39"	0°-45'-54"	max. Earth dist.	4418 Aug 18 09:15	0°00'04"	41.10544 AU
min. Earth dist.	4411 Feb 11 20:07	20°00'36"	40.89943 AU				
direct	4411 May 02 06:36	19°00'33"		conjunction	4418 Aug 20 21:26	0°00'08"	2°04'03"
max. Earth dist.	4411 Aug 09 15:49	21°00'11"	42.78509 AU	minimum elong	4418 Aug 20 21:22	0°00'08"	2°04'03"
				retrograde	4418 Dec 01 14:58	1°00'55"	
conjunction	4411 Aug 11 21:40	21°00'15"	0°-33'-2"	opposition	4419 Feb 19 20:11	0°00'48"	2°22'38"
minimum elong	4411 Aug 11 21:41	21°00'15"	0°33'03"	min. Earth dist.	4419 Feb 22 01:32	0°00'45"	38.98320 AU
retrograde	4411 Nov 22 11:21	22°00'57"			4419 Apr 02 03:50	30°00'00"	
opposition	4412 Feb 11 08:26	21°00'52"	0°-23'-16"	direct	4419 May 11 21:41	29°00'40"	
min. Earth dist.	4412 Feb 13 08:40	21°00'50"	40.66723 AU		4419 Jun 20 09:09	0°00'00"	
direct	4412 May 02 14:33	20°00'47"		max. Earth dist.	4419 Aug 20 00:06	1°00'24"	40.86007 AU
max. Earth dist.	4412 Aug 10 04:12	22°00'25"	42.55131 AU				
				conjunction	4419 Aug 22 12:50	1°00'28"	2°27'24"
conjunction	4412 Aug 12 10:18	22°00'29"	0°-11'-20"	minimum elong	4419 Aug 22 12:45	1°00'28"	2°27'24"
minimum elong	4412 Aug 12 10:18	22°00'29"	0°11'21"	retrograde	4419 Dec 03 07:38	3°00'16"	
behind sun begin	4412 Aug 12 05:37	22°00'28"		opposition	4420 Feb 21 09:49	2°00'09"	2°47'20"
behind sun end	4412 Aug 12 14:59	22°00'29"		min. Earth dist.	4420 Feb 23 16:32	2°00'06"	38.73760 AU
retrograde	4412 Nov 23 00:42	24°00'12"		direct	4420 May 12 10:30	1°00'01"	
opposition	4413 Feb 11 19:27	23°00'06"	0°00'-21"	max. Earth dist.	4420 Aug 20 14:58	2°00'45"	40.61292 AU
min. Earth dist.	4413 Feb 13 20:31	23°00'04"	40.43180 AU				
asc. node	4413 Feb 17 12:28	22°00'59"		conjunction	4420 Aug 23 04:27	2°00'49"	2°50'57"
direct	4413 May 04 00:21	22°00'00"		minimum elong	4420 Aug 23 04:22	2°00'49"	2°50'56"
max. Earth dist.	4413 Aug 11 15:31	23°00'39"	42.31466 AU	retrograde	4420 Dec 03 23:41	4°00'38"	
				opposition	4421 Feb 21 23:45	3°00'31"	3°12'15"
conjunction	4413 Aug 13 23:15	23°00'43"	0°10'42"	min. Earth dist.	4421 Feb 24 06:39	3°00'28"	38.48997 AU
minimum elong	4413 Aug 13 23:14	23°00'43"	0°10'42"	direct	4421 May 14 01:26	2°00'22"	
behind sun begin	4413 Aug 13 18:17	23°00'43"		max. Earth dist.	4421 Aug 22 05:15	4°00'07"	40.36317 AU
behind sun end	4413 Aug 14 04:11	23°00'43"					
retrograde	4413 Nov 24 15:32	25°00'27"		conjunction	4421 Aug 24 20:48	4°00'12"	3°14'42"
opposition	4414 Feb 13 06:33	24°00'21"	0°22'50"	minimum elong	4421 Aug 24 20:42	4°00'12"	3°14'42"
min. Earth dist.	4414 Feb 15 08:18	24°00'19"	40.19394 AU	retrograde	4421 Dec 05 15:13	6°00'02"	
direct	4414 May 05 10:21	23°00'15"		opposition	4422 Feb 23 14:13	4°00'54"	3°37'24"
max. Earth dist.	4414 Aug 13 03:44	24°00'55"	42.07552 AU	min. Earth dist.	4422 Feb 25 23:10	4°00'51"	38.23971 AU
				direct	4422 May 15 15:28	3°00'45"	
conjunction	4414 Aug 15 12:39	24°00'58"	0°32'54"	max. Earth dist.	4422 Aug 23 22:00	5°00'31"	40.11067 AU
minimum elong	4414 Aug 15 12:38	24°00'58"	0°32'53"				
retrograde	4414 Nov 26 03:53	26°00'43"		conjunction	4422 Aug 26 13:44	5°00'35"	3°38'38"
opposition	4415 Feb 14 18:15	25°00'37"	0°46'17"	minimum elong	4422 Aug 26 13:38	5°00'35"	3°38'38"
min. Earth dist.	4415 Feb 16 21:31	25°00'34"	39.95400 AU	retrograde	4422 Dec 07 06:48	7°00'26"	
direct	4415 May 06 23:47	24°00'30"		opposition	4423 Feb 25 05:09	6°00'18"	4°02'46"
max. Earth dist.	4415 Aug 14 17:14	26°00'11"	41.83466 AU	min. Earth dist.	4423 Feb 27 14:18	6°00'15"	37.98669 AU
				direct	4423 May 17 05:39	5°00'09"	

max. Earth dist.	4423 Aug 25 12:53	6° $\mathring{\mu}$ 55'48	39.85539 AU	minimum elong	4431 Sep 09 18:46	19° $\mathring{\mu}$ 02'57	7°20'23
				retrograde	4431 Dec 21 18:06	21° $\mathring{\mu}$ 02'56	
conjunction	4423 Aug 28 06:52	7° $\mathring{\mu}$ 00'27	4°02'46	opposition	4432 Mar 09 17:41	19° $\mathring{\mu}$ 51'25	7°58'05
minimum elong	4423 Aug 28 06:45	7° $\mathring{\mu}$ 00'26	4°02'46	min. Earth dist.	4432 Mar 12 08:49	19° $\mathring{\mu}$ 47'39	35.66700 AU
retrograde	4423 Dec 09 01:29	8° $\mathring{\mu}$ 52'17		direct	4432 May 29 09:34	18° $\mathring{\mu}$ 38'11	
opposition	4424 Feb 26 20:32	7° $\mathring{\mu}$ 43'47	4°28'20	max. Earth dist.	4432 Sep 07 18:01	20° $\mathring{\mu}$ 34'17	37.52110 AU
min. Earth dist.	4424 Feb 29 07:14	7° $\mathring{\mu}$ 40'28	37.73126 AU				
direct	4424 May 17 18:12	6° $\mathring{\mu}$ 33'59		conjunction	4432 Sep 10 17:07	20° $\mathring{\mu}$ 39'42	7°45'21
max. Earth dist.	4424 Aug 26 06:20	8° $\mathring{\mu}$ 21'43	39.59774 AU	minimum elong	4432 Sep 10 16:53	20° $\mathring{\mu}$ 39'41	7°45'22
				retrograde	4432 Dec 22 18:54	22° $\mathring{\mu}$ 40'48	
conjunction	4424 Aug 29 00:42	8° $\mathring{\mu}$ 26'26	4°27'04	opposition	4433 Mar 11 13:49	21° $\mathring{\mu}$ 28'55	8°24'37
minimum elong	4424 Aug 29 00:34	8° $\mathring{\mu}$ 26'25	4°27'03	min. Earth dist.	4433 Mar 14 04:47	21° $\mathring{\mu}$ 25'10	35.41159 AU
retrograde	4424 Dec 09 19:59	10° $\mathring{\mu}$ 19'11		direct	4433 May 31 05:22	20° $\mathring{\mu}$ 15'16	
opposition	4425 Feb 27 12:22	9° $\mathring{\mu}$ 10'19	4°54'06	max. Earth dist.	4433 Sep 09 15:40	22° $\mathring{\mu}$ 12'32	37.26342 AU
min. Earth dist.	4425 Mar 01 23:54	9° $\mathring{\mu}$ 06'56	37.47379 AU				
direct	4425 May 19 09:27	8° $\mathring{\mu}$ 00'06		conjunction	4433 Sep 12 16:03	22° $\mathring{\mu}$ 18'05	8°10'18
max. Earth dist.	4425 Aug 27 23:14	9° $\mathring{\mu}$ 48'44	39.33840 AU	minimum elong	4433 Sep 12 15:47	22° $\mathring{\mu}$ 18'04	8°10'18
				retrograde	4433 Dec 24 18:21	24° $\mathring{\mu}$ 20'23	
conjunction	4425 Aug 30 18:50	9° $\mathring{\mu}$ 53'34	4°51'31	opposition	4434 Mar 13 10:55	23° $\mathring{\mu}$ 08'07	8°51'09
minimum elong	4425 Aug 30 18:41	9° $\mathring{\mu}$ 53'33	4°51'31	min. Earth dist.	4434 Mar 16 03:31	23° $\mathring{\mu}$ 04'13	35.15602 AU
retrograde	4425 Dec 11 17:21	11° $\mathring{\mu}$ 47'15		direct	4434 Jun 02 01:41	21° $\mathring{\mu}$ 54'01	
opposition	4426 Mar 01 04:35	10° $\mathring{\mu}$ 38'01	5°20'02	max. Earth dist.	4434 Sep 11 15:31	23° $\mathring{\mu}$ 52'33	37.00545 AU
min. Earth dist.	4426 Mar 03 16:26	10° $\mathring{\mu}$ 34'36	37.21504 AU				
direct	4426 May 21 01:28	9° $\mathring{\mu}$ 27'22		conjunction	4434 Sep 14 15:41	23° $\mathring{\mu}$ 58'09	8°35'13
max. Earth dist.	4426 Aug 29 16:56	11° $\mathring{\mu}$ 16'56	39.07773 AU	minimum elong	4434 Sep 14 15:25	23° $\mathring{\mu}$ 58'07	8°35'14
				retrograde	4434 Dec 26 18:06	26° $\mathring{\mu}$ 01'37	
conjunction	4426 Sep 01 13:37	11° $\mathring{\mu}$ 21'53	5°16'06	opposition	4435 Mar 15 08:30	24° $\mathring{\mu}$ 48'58	9°17'38
minimum elong	4426 Sep 01 13:27	11° $\mathring{\mu}$ 21'53	5°16'07	min. Earth dist.	4435 Mar 18 00:49	24° $\mathring{\mu}$ 45'04	34.90019 AU
retrograde	4426 Dec 13 12:00	13° $\mathring{\mu}$ 16'32		direct	4435 Jun 04 00:16	23° $\mathring{\mu}$ 34'25	
opposition	4427 Mar 02 21:24	12° $\mathring{\mu}$ 06'54	5°46'07	max. Earth dist.	4435 Sep 13 13:53	25° $\mathring{\mu}$ 34'05	36.74722 AU
min. Earth dist.	4427 Mar 05 10:46	12° $\mathring{\mu}$ 03'23	36.95551 AU				
direct	4427 May 22 18:18	10° $\mathring{\mu}$ 55'49		conjunction	4435 Sep 16 15:54	25° $\mathring{\mu}$ 39'52	9°00'04
max. Earth dist.	4427 Aug 31 12:17	12° $\mathring{\mu}$ 46'26	38.81672 AU	minimum elong	4435 Sep 16 15:36	25° $\mathring{\mu}$ 39'51	9°00'03
				retrograde	4435 Dec 28 19:05	27° $\mathring{\mu}$ 44'35	
conjunction	4427 Sep 03 08:48	12° $\mathring{\mu}$ 51'25	5°40'49	opposition	4436 Mar 16 06:55	26° $\mathring{\mu}$ 31'31	9°44'04
minimum elong	4427 Sep 03 08:37	12° $\mathring{\mu}$ 51'24	5°40'49	min. Earth dist.	4436 Mar 19 00:31	26° $\mathring{\mu}$ 27'30	34.64444 AU
retrograde	4427 Dec 15 06:08	14° $\mathring{\mu}$ 47'02		direct	4436 Jun 04 19:55	25° $\mathring{\mu}$ 16'29	
opposition	4428 Mar 03 14:40	13° $\mathring{\mu}$ 37'02	6°12'21	max. Earth dist.	4436 Sep 14 15:17	27° $\mathring{\mu}$ 17'28	36.48911 AU
min. Earth dist.	4428 Mar 06 03:31	13° $\mathring{\mu}$ 33'30	36.69606 AU				
direct	4428 May 23 13:13	12° $\mathring{\mu}$ 25'30		conjunction	4436 Sep 17 16:49	27° $\mathring{\mu}$ 23'17	9°24'48
max. Earth dist.	4428 Sep 01 06:14	14° $\mathring{\mu}$ 17'03	38.55589 AU	minimum elong	4436 Sep 17 16:31	27° $\mathring{\mu}$ 23'15	9°24'49
				retrograde	4436 Dec 29 18:40	29° $\mathring{\mu}$ 29'14	
conjunction	4428 Sep 04 04:18	14° $\mathring{\mu}$ 22'12	6°05'38	opposition	4437 Mar 18 05:58	28° $\mathring{\mu}$ 15'44	10°10'24
minimum elong	4428 Sep 04 04:07	14° $\mathring{\mu}$ 22'11	6°05'37	min. Earth dist.	4437 Mar 20 23:36	28° $\mathring{\mu}$ 11'42	34.38904 AU
retrograde	4428 Dec 16 01:29	16° $\mathring{\mu}$ 18'51		direct	4437 Jun 06 18:26	27° $\mathring{\mu}$ 00'13	
opposition	4429 Mar 05 08:36	15° $\mathring{\mu}$ 08'27	6°38'41	max. Earth dist.	4437 Sep 16 15:39	29° $\mathring{\mu}$ 02'25	36.23167 AU
min. Earth dist.	4429 Mar 07 22:39	15° $\mathring{\mu}$ 04'49	36.43727 AU				
direct	4429 May 25 05:19	13° $\mathring{\mu}$ 56'29		conjunction	4437 Sep 19 18:24	29° $\mathring{\mu}$ 08'23	9°49'25
max. Earth dist.	4429 Sep 03 03:19	15° $\mathring{\mu}$ 49'11	38.29583 AU	minimum elong	4437 Sep 19 18:04	29° $\mathring{\mu}$ 08'21	9°49'24
					4437 Oct 17 11:00	0° $\mathring{\mu}$	
conjunction	4429 Sep 06 00:41	15° $\mathring{\mu}$ 54'19	6°30'30	retrograde	4437 Dec 31 21:50	1° $\mathring{\mu}$ 15'35	
minimum elong	4429 Sep 06 00:29	15° $\mathring{\mu}$ 54'18	6°30'30	opposition	4438 Mar 20 05:31	0° $\mathring{\mu}$ 01'39	10°36'34
retrograde	4429 Dec 17 20:46	17° $\mathring{\mu}$ 52'02			4438 Mar 21 08:15	30° $\mathring{\mu}$	
opposition	4430 Mar 07 02:57	16° $\mathring{\mu}$ 41'15	7°05'06	min. Earth dist.	4438 Mar 22 23:29	29° $\mathring{\mu}$ 57'34	34.13478 AU
min. Earth dist.	4430 Mar 09 16:44	16° $\mathring{\mu}$ 37'37	36.17945 AU	direct	4438 Jun 08 16:03	28° $\mathring{\mu}$ 45'38	
direct	4430 May 26 22:40	15° $\mathring{\mu}$ 28'51			4438 Aug 23 08:24	0° $\mathring{\mu}$	
max. Earth dist.	4430 Sep 04 22:54	17° $\mathring{\mu}$ 22'36	38.03685 AU	max. Earth dist.	4438 Sep 18 18:13	0° $\mathring{\mu}$ 49'12	35.97541 AU
conjunction	4430 Sep 07 21:32	17° $\mathring{\mu}$ 27'53	6°55'26	conjunction	4438 Sep 21 20:49	0° $\mathring{\mu}$ 55'12	10°13'49
minimum elong	4430 Sep 07 21:19	17° $\mathring{\mu}$ 27'52	6°55'26	minimum elong	4438 Sep 21 20:30	0° $\mathring{\mu}$ 55'11	10°13'50
retrograde	4430 Dec 19 19:26	19° $\mathring{\mu}$ 26'41		retrograde	4439 Jan 03 00:12	3° $\mathring{\mu}$ 03'41	
opposition	4431 Mar 08 21:58	18° $\mathring{\mu}$ 15'32	7°31'34	opposition	4439 Mar 22 06:03	1° $\mathring{\mu}$ 49'18	11°02'32
min. Earth dist.	4431 Mar 11 12:16	18° $\mathring{\mu}$ 11'51	35.92286 AU	min. Earth dist.	4439 Mar 25 00:44	1° $\mathring{\mu}$ 45'09	33.88220 AU
direct	4431 May 28 14:55	17° $\mathring{\mu}$ 02'44		direct	4439 Jun 10 15:15	0° $\mathring{\mu}$ 32'48	
max. Earth dist.	4431 Sep 06 20:25	18° $\mathring{\mu}$ 57'40	37.77867 AU	max. Earth dist.	4439 Sep 20 21:06	2° $\mathring{\mu}$ 37'43	35.72133 AU
conjunction	4431 Sep 09 19:01	19° $\mathring{\mu}$ 02'59	7°20'24	conjunction	4439 Sep 23 23:36	2° $\mathring{\mu}$ 43'46	10°38'00

minimum elong	4439 Sep 23 23:16	2° 2 43'45	10°37'59	min. Earth dist.	4448 Apr 10 15:01	19° 2 22'22	31.76978 AU
retrograde	4440 Jan 05 05:16	4° 2 53'33		direct	4448 Jun 26 21:07	18° 2 06'03	
opposition	4440 Mar 23 07:08	3° 2 38'44	11°28'14	max. Earth dist.	4448 Oct 08 14:19	20° 2 24'21	33.59900 AU
min. Earth dist.	4440 Mar 26 00:56	3° 2 34'37	33.63226 AU				
direct	4440 Jun 11 16:31	2° 2 21'43		conjunction	4448 Oct 11 13:51	20° 2 30'43	13°55'38
max. Earth dist.	4440 Sep 22 00:21	4° 2 28'00	35.47003 AU	minimum elong	4448 Oct 11 13:29	20° 2 30'41	13°55'38
				retrograde	4449 Jan 23 03:11	22° 2 52'59	
conjunction	4440 Sep 25 03:18	4° 2 34'09	11°01'53	opposition	4449 Apr 10 06:37	21° 2 34'35	14°57'57
minimum elong	4440 Sep 25 02:57	4° 2 34'07	11°01'53	min. Earth dist.	4449 Apr 12 22:17	21° 2 30'21	31.55371 AU
retrograde	4441 Jan 06 10:20	6° 2 45'15		direct	4449 Jun 29 06:28	20° 2 13'30	
opposition	4441 Mar 25 09:03	5° 2 30'00	11°53'37	max. Earth dist.	4449 Oct 11 01:05	22° 2 33'14	33.38212 AU
min. Earth dist.	4441 Mar 28 03:39	5° 2 25'48	33.38564 AU				
direct	4441 Jun 13 18:00	4° 2 12'31		conjunction	4449 Oct 14 00:56	22° 2 39'41	14°14'21
max. Earth dist.	4441 Sep 24 06:04	6° 2 20'18	35.22245 AU	minimum elong	4449 Oct 14 00:35	22° 2 39'39	14°14'21
				retrograde	4450 Jan 25 15:43	25° 2 03'18	
conjunction	4441 Sep 27 07:47	6° 2 26'25	11°25'24	opposition	4450 Apr 12 16:18	23° 2 44'29	15°17'44
minimum elong	4441 Sep 27 07:26	6° 2 26'23	11°25'24	min. Earth dist.	4450 Apr 15 08:25	23° 2 40'12	31.34203 AU
retrograde	4442 Jan 08 16:25	8° 2 38'51		direct	4450 Jul 01 15:03	22° 2 22'57	
opposition	4442 Mar 27 11:45	7° 2 23'12	12°18'37	max. Earth dist.	4450 Oct 13 14:45	24° 2 44'16	33.17006 AU
min. Earth dist.	4442 Mar 30 05:02	7° 2 19'02	33.14294 AU				
direct	4442 Jun 15 21:29	6° 2 05'14		conjunction	4450 Oct 16 12:44	24° 2 50'36	14°32'10
max. Earth dist.	4442 Sep 26 10:33	8° 2 14'25	34.97890 AU	minimum elong	4450 Oct 16 12:24	24° 2 50'34	14°32'11
				retrograde	4451 Jan 28 04:24	27° 2 15'33	
conjunction	4442 Sep 29 12:58	8° 2 20'39	11°48'31	opposition	4451 Apr 15 02:46	25° 2 56'19	15°36'31
minimum elong	4442 Sep 29 12:36	8° 2 20'37	11°48'32	min. Earth dist.	4451 Apr 17 17:27	25° 2 52'06	31.13537 AU
retrograde	4443 Jan 10 21:46	10° 2 34'29		direct	4451 Jul 04 02:28	24° 2 34'19	
opposition	4443 Mar 29 15:18	9° 2 18'25	12°43'10	max. Earth dist.	4451 Oct 16 03:10	26° 2 57'01	32.96359 AU
min. Earth dist.	4443 Apr 01 09:06	9° 2 14'12	32.90455 AU				
direct	4443 Jun 17 22:29	8° 2 00'01		conjunction	4451 Oct 19 01:12	27° 2 03'25	14°49'01
max. Earth dist.	4443 Sep 28 18:11	10° 2 10'47	34.73965 AU	minimum elong	4451 Oct 19 00:52	27° 2 03'24	14°49'01
				retrograde	4452 Jan 30 17:14	29° 2 29'42	
conjunction	4443 Oct 01 19:04	10° 2 16'58	12°11'10	opposition	4452 Apr 16 14:01	28° 2 10'03	15°54'14
minimum elong	4443 Oct 01 18:42	10° 2 16'56	12°11'10	min. Earth dist.	4452 Apr 19 04:18	28° 2 05'50	30.93478 AU
retrograde	4444 Jan 13 02:47	12° 2 32'11		direct	4452 Jul 05 11:55	26° 2 47'36	
opposition	4444 Mar 30 19:41	11° 2 15'46	13°07'13	max. Earth dist.	4452 Oct 17 18:46	29° 2 11'53	32.76359 AU
min. Earth dist.	4444 Apr 02 12:43	11° 2 11'34	32.67033 AU				
direct	4444 Jun 19 01:38	9° 2 56'56		conjunction	4452 Oct 20 14:28	29° 2 18'08	15°04'48
max. Earth dist.	4444 Sep 30 00:14	12° 2 09'08	34.50450 AU	minimum elong	4452 Oct 20 14:09	29° 2 18'06	15°04'48
					4452 Nov 08 18:04	0° 2 00'00	
conjunction	4444 Oct 03 01:46	12° 2 15'25	12°33'18	retrograde	4453 Feb 01 05:30	1° 2 04'51	
minimum elong	4444 Oct 03 01:24	12° 2 15'23	12°33'19	opposition	4453 Apr 19 02:13	0° 2 05'39	16°10'46
retrograde	4445 Jan 14 11:27	14° 2 32'04		min. Earth dist.	4453 Apr 21 15:14	0° 2 01'30	30.74083 AU
opposition	4445 Apr 02 00:52	13° 2 15'16	13°30'43		4453 May 05 01:23	30° 2 00'00	
min. Earth dist.	4445 Apr 04 17:47	13° 2 11'03	32.44006 AU	direct	4453 Jul 07 23:35	29° 2 02'47	
direct	4445 Jun 21 03:24	11° 2 56'00			4453 Sep 07 07:15	0° 2 00'00	
max. Earth dist.	4445 Oct 02 09:04	14° 2 09'47	34.27288 AU	max. Earth dist.	4453 Oct 20 09:13	1° 2 08'28	32.57095 AU
conjunction	4445 Oct 05 09:39	14° 2 16'03	12°54'52	conjunction	4453 Oct 23 04:25	1° 2 03'43	15°19'25
minimum elong	4445 Oct 05 09:17	14° 2 16'01	12°54'52	minimum elong	4453 Oct 23 04:06	1° 2 03'41	15°19'24
retrograde	4446 Jan 16 18:40	16° 2 34'08		retrograde	4454 Feb 03 20:58	4° 2 03'33	
opposition	4446 Apr 04 06:59	15° 2 16'57	13°53'36	opposition	4454 Apr 21 15:06	2° 2 03'09	16°26'01
min. Earth dist.	4446 Apr 07 00:09	15° 2 12'42	32.21317 AU	min. Earth dist.	4454 Apr 24 02:30	2° 2 03'06	30.55457 AU
direct	4446 Jun 23 07:04	13° 2 57'14		direct	4454 Jul 10 10:27	1° 2 19'53	
max. Earth dist.	4446 Oct 04 17:37	16° 2 12'31	34.04476 AU	max. Earth dist.	4454 Oct 23 02:26	3° 2 04'08	32.38633 AU
conjunction	4446 Oct 07 18:14	16° 2 18'51	13°15'49	conjunction	4454 Oct 25 19:15	3° 2 03'13	15°32'47
minimum elong	4446 Oct 07 17:52	16° 2 18'49	13°15'50	minimum elong	4454 Oct 25 18:58	3° 2 03'11	15°32'47
retrograde	4447 Jan 19 05:23	18° 2 38'20		retrograde	4455 Feb 06 10:35	6° 2 02'18	
opposition	4447 Apr 06 14:00	17° 2 20'45	14°15'48	opposition	4455 Apr 24 05:04	5° 2 02'35	16°39'54
min. Earth dist.	4447 Apr 09 06:21	17° 2 16'32	31.98976 AU	min. Earth dist.	4455 Apr 26 15:33	4° 2 05'34	30.37639 AU
direct	4447 Jun 25 14:17	16° 2 00'36		direct	4455 Jul 12 22:12	3° 2 03'58	
max. Earth dist.	4447 Oct 07 03:11	18° 2 17'23	33.81997 AU	max. Earth dist.	4455 Oct 25 19:09	6° 2 07'39	32.21037 AU
conjunction	4447 Oct 10 03:36	18° 2 23'45	13°36'06	conjunction	4455 Oct 28 10:30	6° 2 03'39	15°44'49
minimum elong	4447 Oct 10 03:14	18° 2 23'43	13°36'05	minimum elong	4455 Oct 28 10:13	6° 2 03'38	15°44'49
retrograde	4448 Jan 21 15:21	20° 2 44'39		retrograde	4456 Feb 09 03:21	8° 2 04'59	
opposition	4448 Apr 07 22:01	19° 2 26'39	14°37'17	opposition	4456 Apr 25 19:39	7° 2 02'59	16°52'19

min. Earth dist.	4456 Apr 28 03:50	7°M20'06	30.20666 AU	min. Earth dist.	4464 May 17 14:48	27°M12'59	29.13886 AU
direct	4456 Jul 14 12:50	6°M00'03		direct	4464 Aug 03 10:36	25°M50'16	
max. Earth dist.	4456 Oct 27 13:16	8°M30'13	32.04282 AU	max. Earth dist.	4464 Nov 17 11:20	28°M29'23	31.00363 AU
conjunction	4456 Oct 30 02:44	8°M36'04	15°55'28	conjunction	4464 Nov 19 08:48	28°M33'56	16°23'43
minimum elong	4456 Oct 30 02:30	8°M36'03	15°55'28	minimum elong	4464 Nov 19 08:50	28°M33'56	16°23'43
retrograde	4457 Feb 10 19:21	11°M08'36			4464 Dec 27 05:08	0°J	
opposition	4457 Apr 28 11:04	9°M47'20	17°03'14	retrograde	4465 Mar 03 06:33	1°J13'18	
min. Earth dist.	4457 Apr 30 18:53	9°M43'28	30.04508 AU		4465 May 12 22:05	30°RM	
direct	4457 Jul 17 02:29	8°M23'07		opposition	4465 May 18 15:37	29°M50'18	17°28'29
max. Earth dist.	4457 Oct 30 08:08	10°M54'42	31.88367 AU	min. Earth dist.	4465 May 20 08:10	29°M47'26	29.04554 AU
				direct	4465 Aug 06 06:37	28°M24'20	
conjunction	4457 Nov 01 19:39	11°M00'25	16°04'39		4465 Oct 23 18:48	0°J	
minimum elong	4457 Nov 01 19:26	11°M00'23	16°04'39	max. Earth dist.	4465 Nov 20 11:29	1°J04'18	30.91638 AU
retrograde	4458 Feb 13 13:59	13°M34'06					
opposition	4458 May 01 03:19	12°M12'35	17°12'33	conjunction	4465 Nov 22 05:15	1°J08'29	16°19'21
min. Earth dist.	4458 May 03 08:38	12°M08'53	29.89145 AU	minimum elong	4465 Nov 22 05:17	1°J08'30	16°19'21
direct	4458 Jul 19 18:59	10°M48'07		retrograde	4466 Mar 06 01:32	3°J48'18	
max. Earth dist.	4458 Nov 02 02:51	13°M20'59	31.73247 AU	opposition	4466 May 21 12:36	2°J25'09	17°23'02
				min. Earth dist.	4466 May 23 03:18	2°J22'24	28.96317 AU
conjunction	4458 Nov 04 13:09	13°M26'37	16°12'20	direct	4466 Aug 09 02:09	0°J59'04	
minimum elong	4458 Nov 04 12:59	13°M26'36	16°12'21	max. Earth dist.	4466 Nov 23 10:21	3°J39'39	30.84094 AU
	4458 Dec 17 13:25	15°M					
retrograde	4459 Feb 16 08:41	16°M01'23		conjunction	4466 Nov 25 01:33	3°J43'35	16°13'05
	4459 Apr 21 13:00	15°RM		minimum elong	4466 Nov 25 01:39	3°J43'36	16°13'05
opposition	4459 May 03 20:29	14°M39'38	17°20'14	retrograde	4467 Mar 08 21:36	6°J23'44	
min. Earth dist.	4459 May 06 01:17	14°M35'57	29.74559 AU	opposition	4467 May 24 09:42	5°J00'29	17°15'30
direct	4459 Jul 22 11:03	13°M14'55		min. Earth dist.	4467 May 25 20:35	4°J58'01	28.89253 AU
	4459 Oct 14 11:04	15°M		direct	4467 Aug 12 00:15	3°J34'20	
max. Earth dist.	4459 Nov 04 23:39	15°M49'07	31.58940 AU	max. Earth dist.	4467 Nov 26 10:30	6°J15'33	30.77764 AU
conjunction	4459 Nov 07 07:21	15°M54'32	16°18'27	conjunction	4467 Nov 27 22:11	6°J19'08	16°04'54
minimum elong	4459 Nov 07 07:11	15°M54'31	16°18'27	minimum elong	4467 Nov 27 22:18	6°J19'09	16°04'54
retrograde	4460 Feb 19 03:51	18°M30'18		retrograde	4468 Mar 10 16:50	8°J59'33	
opposition	4460 May 05 14:11	17°M08'19	17°26'12	opposition	4468 May 26 07:06	7°J36'15	17°05'54
min. Earth dist.	4460 May 07 16:36	17°M04'48	29.60750 AU	min. Earth dist.	4468 May 27 16:06	7°J33'54	28.83386 AU
direct	4460 Jul 24 06:11	15°M43'22		direct	4468 Aug 13 20:34	6°J10'04	
max. Earth dist.	4460 Nov 06 19:15	18°M18'39	31.45441 AU	max. Earth dist.	4468 Nov 28 10:11	8°J51'45	30.72675 AU
conjunction	4460 Nov 09 02:01	18°M24'01	16°22'57	conjunction	4468 Nov 29 18:50	8°J55'03	15°54'47
minimum elong	4460 Nov 09 01:54	18°M24'00	16°22'58	minimum elong	4468 Nov 29 19:01	8°J55'04	15°54'47
retrograde	4461 Feb 20 23:13	21°M00'42		retrograde	4469 Mar 13 14:00	11°J35'38	
opposition	4461 May 08 08:40	19°M38'30	17°30'25	opposition	4469 May 29 04:37	10°J12'19	16°54'14
min. Earth dist.	4461 May 10 10:06	19°M35'02	29.47740 AU	min. Earth dist.	4469 May 30 09:46	10°J10'16	28.78699 AU
direct	4461 Jul 26 23:12	18°M13'19		direct	4469 Aug 16 18:39	8°J46'10	
max. Earth dist.	4461 Nov 09 17:38	20°M49'48	31.32782 AU	max. Earth dist.	4469 Dec 01 09:47	11°J28'14	30.68768 AU
conjunction	4461 Nov 11 21:19	20°M54'53	16°25'47	conjunction	4469 Dec 02 15:31	11°J31'14	15°42'47
minimum elong	4461 Nov 11 21:13	20°M54'53	16°25'47	minimum elong	4469 Dec 02 15:42	11°J31'15	15°42'48
retrograde	4462 Feb 23 19:04	23°M32'23		retrograde	4470 Mar 16 09:48	14°J11'54	
opposition	4462 May 11 03:41	22°M09'58	17°32'49	opposition	4470 Jun 01 02:27	12°J48'36	16°40'32
min. Earth dist.	4462 May 13 03:01	22°M06'39	29.35547 AU	min. Earth dist.	4470 Jun 02 05:45	12°J46'40	28.75163 AU
direct	4462 Jul 29 19:21	20°M44'34		direct	4470 Aug 19 15:59	11°J22'31	
max. Earth dist.	4462 Nov 12 14:15	23°M21'57	31.21007 AU	max. Earth dist.	4470 Dec 04 10:01	14°J04'53	30.66031 AU
conjunction	4462 Nov 14 16:52	23°M26'57	16°26'53	conjunction	4470 Dec 05 12:11	14°J07'32	15°28'56
minimum elong	4462 Nov 14 16:49	23°M26'57	16°26'54	minimum elong	4470 Dec 05 12:26	14°J07'33	15°28'56
retrograde	4463 Feb 26 15:28	26°M05'11		retrograde	4471 Mar 19 06:33	16°J48'11	
opposition	4463 May 13 23:17	24°M42'33	17°33'20	opposition	4471 Jun 04 00:19	15°J24'55	16°24'51
min. Earth dist.	4463 May 15 20:37	24°M39'22	29.24249 AU	min. Earth dist.	4471 Jun 05 00:07	15°J23'14	28.72733 AU
direct	4463 Aug 01 14:07	23°M16'57		direct	4471 Aug 22 15:46	13°J58'56	
max. Earth dist.	4463 Nov 15 13:35	25°M55'20	31.10177 AU	max. Earth dist.	4471 Dec 07 08:51	16°J41'23	30.64401 AU
conjunction	4463 Nov 17 12:44	26°M00'02	16°26'13	conjunction	4471 Dec 08 08:38	16°J43'47	15°13'16
minimum elong	4463 Nov 17 12:42	26°M00'01	16°26'13	minimum elong	4471 Dec 08 08:53	16°J43'49	15°13'16
retrograde	4464 Feb 29 09:42	28°M38'53		retrograde	4472 Mar 21 03:10	19°J24'20	
opposition	4464 May 15 19:22	27°M16'03	17°31'55	opposition	4472 Jun 05 22:15	18°J01'07	16°07'14

min. Earth dist.	4472 Jun 06 19:52	17° ♂ 59'36	28.71384 AU	min. Earth dist.	4480 Jun 26 18:20	8° ♂ 24'41	28.98902 AU
direct	4472 Aug 24 13:00	16° ♂ 35'14		direct	4480 Sep 14 20:58	7° ♂ 00'09	
max. Earth dist.	4472 Dec 09 09:07	19° ♂ 17'48	30.63859 AU				
conjunction	4472 Dec 10 05:08	19° ♂ 19'49	14°55'51	conjunction	4480 Dec 30 09:52	9° ♂ 38'53	11°40'49
minimum elong	4472 Dec 10 05:27	19° ♂ 19'51	14°55'51	minimum elong	4480 Dec 30 10:15	9° ♂ 38'55	11°40'48
retrograde	4473 Mar 23 23:19	22° ♂ 00'07		max. Earth dist.	4480 Dec 30 14:35	9° ♂ 39'21	30.98663 AU
opposition	4473 Jun 08 20:00	20° ♂ 36'59	15°47'45	retrograde	4481 Apr 12 21:25	12° ♂ 14'09	
min. Earth dist.	4473 Jun 09 14:40	20° ♂ 35'41	28.71066 AU	opposition	4481 Jun 29 16:19	10° ♂ 52'12	12°12'55
direct	4473 Aug 27 12:59	19° ♂ 11'15		min. Earth dist.	4481 Jun 29 11:02	10° ♂ 52'34	29.07495 AU
max. Earth dist.	4473 Dec 12 07:10	21° ♂ 53'37	30.64370 AU	direct	4481 Sep 17 15:38	9° ♂ 28'12	
conjunction	4473 Dec 13 01:19	21° ♂ 55'26	14°36'44	conjunction	4482 Jan 02 02:00	12° ♂ 05'52	11°10'35
minimum elong	4473 Dec 13 01:37	21° ♂ 55'28	14°36'45	minimum elong	4482 Jan 02 02:23	12° ♂ 05'54	11°10'36
retrograde	4474 Mar 26 20:29	24° ♂ 35'25		max. Earth dist.	4482 Jan 02 10:01	12° ♂ 06'39	31.08214 AU
opposition	4474 Jun 11 17:47	23° ♂ 12'22	15°26'27	retrograde	4482 Apr 15 12:30	14° ♂ 40'15	
min. Earth dist.	4474 Jun 12 09:36	23° ♂ 11'15	28.71794 AU	opposition	4482 Jul 02 10:49	13° ♂ 18'34	11°39'58
direct	4474 Aug 30 11:30	21° ♂ 46'45		min. Earth dist.	4482 Jul 02 01:48	13° ♂ 19'11	29.17208 AU
conjunction	4474 Dec 15 21:10	24° ♂ 30'27	14°15'58	direct	4482 Sep 20 11:55	11° ♂ 54'55	
minimum elong	4474 Dec 15 21:31	24° ♂ 30'29	14°15'59	conjunction	4483 Jan 04 17:21	14° ♂ 31'29	10°39'23
max. Earth dist.	4474 Dec 15 07:03	24° ♂ 29'02	30.65938 AU	minimum elong	4483 Jan 04 17:44	14° ♂ 31'31	10°39'23
retrograde	4475 Mar 29 14:34	27° ♂ 09'59		max. Earth dist.	4483 Jan 05 04:09	14° ♂ 32'32	31.18839 AU
opposition	4475 Jun 14 15:24	25° ♂ 47'02	15°03'25	retrograde	4483 Apr 18 03:51	17° ♂ 04'56	
min. Earth dist.	4475 Jun 15 04:45	25° ♂ 46'06	28.73545 AU	opposition	4483 Jul 05 04:51	15° ♂ 43'32	11°06'01
direct	4475 Sep 02 10:42	24° ♂ 21'36		min. Earth dist.	4483 Jul 04 17:12	15° ♂ 44'19	29.27983 AU
conjunction	4475 Dec 18 16:35	27° ♂ 04'40	13°53'39	direct	4483 Sep 23 04:42	14° ♂ 20'15	
minimum elong	4475 Dec 18 16:55	27° ♂ 04'42	13°53'40	conjunction	4484 Jan 07 08:19	16° ♂ 55'40	10°07'19
max. Earth dist.	4475 Dec 18 04:21	27° ♂ 03'27	30.68562 AU	minimum elong	4484 Jan 07 08:42	16° ♂ 55'42	10°07'20
retrograde	4476 Mar 31 10:43	29° ♂ 43'40		max. Earth dist.	4484 Jan 07 22:36	16° ♂ 57'03	31.30479 AU
opposition	4476 Jun 16 12:25	28° ♂ 20'50	14°38'43	retrograde	4484 Apr 19 17:46	19° ♂ 28'07	
min. Earth dist.	4476 Jun 16 22:22	28° ♂ 20'08	28.76357 AU	opposition	4484 Jul 06 22:05	18° ♂ 07'01	10°31'13
direct	4476 Sep 04 08:48	26° ♂ 55'33		min. Earth dist.	4484 Jul 06 07:44	18° ♂ 07'59	29.39724 AU
conjunction	4476 Dec 20 11:41	29° ♂ 37'55	13°29'48	direct	4484 Sep 25 00:10	16° ♂ 44'07	
minimum elong	4476 Dec 20 12:04	29° ♂ 37'57	13°29'48	conjunction	4485 Jan 08 22:33	19° ♂ 18'20	9°34'30
max. Earth dist.	4476 Dec 20 03:36	29° ♂ 37'07	30.72264 AU	minimum elong	4485 Jan 08 22:55	19° ♂ 18'22	9°34'30
retrograde	4477 Apr 03 04:12	2° ♂ 16'18		max. Earth dist.	4485 Jan 09 14:35	19° ♂ 19'53	31.43038 AU
opposition	4477 Jun 19 09:21	0° ♂ 53'35	14°12'25	retrograde	4485 Apr 22 09:26	21° ♂ 49'46	
min. Earth dist.	4477 Jun 19 17:10	0° ♂ 53'02	28.80244 AU	opposition	4485 Jul 09 14:55	20° ♂ 28'57	9°55'39
direct	4477 Jul 24 02:11	30° ♂ 28'30		min. Earth dist.	4485 Jul 08 21:35	20° ♂ 30'07	29.52379 AU
conjunction	4477 Dec 23 05:59	2° ♂ 10'02	13°04'31	direct	4485 Sep 27 17:53	19° ♂ 06'26	
minimum elong	4477 Dec 23 06:21	2° ♂ 10'05	13°04'32	conjunction	4486 Jan 11 12:11	21° ♂ 39'24	9°01'01
max. Earth dist.	4477 Dec 23 00:15	2° ♂ 09'28	30.77086 AU	minimum elong	4486 Jan 11 12:32	21° ♂ 39'26	9°01'02
retrograde	4478 Apr 05 22:09	4° ♂ 47'44		max. Earth dist.	4486 Jan 12 07:48	21° ♂ 41'17	31.56459 AU
opposition	4478 Jun 22 05:46	3° ♂ 25'09	13°44'36	retrograde	4486 Apr 24 21:25	24° ♂ 09'45	
min. Earth dist.	4478 Jun 22 09:23	3° ♂ 24'54	28.85274 AU	opposition	4486 Jul 12 07:12	22° ♂ 49'14	9°19'27
direct	4478 Sep 10 04:45	2° ♂ 00'16		min. Earth dist.	4486 Jul 11 12:01	22° ♂ 50'30	29.65866 AU
conjunction	4478 Dec 25 23:55	4° ♂ 40'57	12°37'53	direct	4486 Sep 30 12:04	21° ♂ 27'05	
minimum elong	4478 Dec 26 00:19	4° ♂ 40'59	12°37'53	conjunction	4487 Jan 14 01:04	23° ♂ 58'46	8°26'59
max. Earth dist.	4478 Dec 25 22:19	4° ♂ 40'47	30.83074 AU	minimum elong	4487 Jan 14 01:23	23° ♂ 58'48	8°26'59
retrograde	4479 Apr 08 13:30	7° ♂ 17'53		max. Earth dist.	4487 Jan 14 22:04	24° ♂ 00'46	31.70679 AU
opposition	4479 Jun 25 01:52	5° ♂ 55'28	13°15'21	retrograde	4487 Apr 27 11:04	26° ♂ 28'00	
min. Earth dist.	4479 Jun 25 03:11	5° ♂ 55'22	28.91489 AU	opposition	4487 Jul 14 22:37	25° ♂ 07'46	8°42'44
direct	4479 Sep 13 00:54	4° ♂ 30'51		min. Earth dist.	4487 Jul 14 00:04	25° ♂ 09'16	29.80155 AU
conjunction	4479 Dec 28 17:06	7° ♂ 10'34	12°09'56	direct	4487 Oct 03 04:38	23° ♂ 45'59	
minimum elong	4479 Dec 28 17:29	7° ♂ 10'36	12°09'57	conjunction	4488 Jan 16 13:20	26° ♂ 16'21	7°52'30
max. Earth dist.	4479 Dec 28 18:19	7° ♂ 10'41	30.90277 AU	minimum elong	4488 Jan 16 13:39	26° ♂ 16'23	7°52'30
retrograde	4480 Apr 10 06:53	9° ♂ 46'41		max. Earth dist.	4488 Jan 17 13:42	26° ♂ 18'39	31.85656 AU
opposition	4480 Jun 26 21:18	8° ♂ 24'29	12°44'45	retrograde	4488 Apr 28 21:52	28° ♂ 44'26	
				opposition	4488 Jul 16 13:28	27° ♂ 24'28	8°05'35
				min. Earth dist.	4488 Jul 15 13:32	27° ♂ 26'03	29.95194 AU
				direct	4488 Oct 04 22:01	26° ♂ 03'03	

conjunction	4489 Jan 18 00:43	28°  32'04	7°17'38	direct	4496 Oct 22 23:42	13°  13'02	
minimum elong	4489 Jan 18 01:01	28°  32'05	7°17'37		4497 Jan 19 17:09	15° 	
max. Earth dist.	4489 Jan 19 02:30	28°  34'28	32.01366 AU				
	4489 Mar 01 00:55	0° 		conjunction	4497 Feb 03 17:01	15°  31'22	2°34'36
retrograde	4489 May 01 09:17	0°  58'58		minimum elong	4497 Feb 03 17:07	15°  31'23	2°34'36
	4489 Jul 05 20:20	30°  3		max. Earth dist.	4497 Feb 05 14:02	15°  35'20	33.54223 AU
min. Earth dist.	4489 Jul 18 00:01	29°  41'04	30.10984 AU	retrograde	4497 May 17 20:00	17°  49'03	
opposition	4489 Jul 19 03:23	29°  39'16	7°28'05	min. Earth dist.	4497 Aug 03 20:22	16°  34'49	31.65173 AU
direct	4489 Oct 07 14:10	28°  18'12		opposition	4497 Aug 05 17:17	16°  32'00	2°25'52
	4489 Dec 30 13:05	0° 		direct	4497 Oct 25 10:19	15°  14'14	
conjunction	4490 Jan 20 11:24	0°  45'51	6°42'29	conjunction	4498 Feb 05 22:00	17°  31'18	1°59'46
minimum elong	4490 Jan 20 11:41	0°  45'52	6°42'30	minimum elong	4498 Feb 05 22:05	17°  31'19	1°59'47
max. Earth dist.	4490 Jan 21 16:13	0°  48'31	32.17812 AU	max. Earth dist.	4498 Feb 07 19:51	17°  35'18	33.76168 AU
retrograde	4490 May 03 17:05	3°  11'33		retrograde	4498 May 20 01:32	19°  47'52	
min. Earth dist.	4490 Jul 20 11:55	1°  54'02	30.27559 AU	min. Earth dist.	4498 Aug 06 01:19	18°  34'09	31.87241 AU
opposition	4490 Jul 21 16:50	1°  52'08	6°50'20	opposition	4498 Aug 08 00:53	18°  31'11	1°48'56
direct	4490 Oct 10 04:12	0°  31'25		direct	4498 Oct 27 19:37	17°  13'51	
conjunction	4491 Jan 22 21:09	2°  57'40	6°07'07	conjunction	4499 Feb 08 02:18	19°  29'39	1°25'15
minimum elong	4491 Jan 22 21:24	2°  57'42	6°07'07	minimum elong	4499 Feb 08 02:21	19°  29'39	1°25'14
max. Earth dist.	4491 Jan 24 04:12	3°  00'32	32.35043 AU	max. Earth dist.	4499 Feb 10 02:05	19°  33'47	33.98492 AU
retrograde	4491 May 06 01:11	5°  22'11		retrograde	4499 May 22 03:32	21°  45'06	
min. Earth dist.	4491 Jul 22 21:08	4°  05'09	30.44939 AU	min. Earth dist.	4499 Aug 08 07:37	20°  31'45	32.09692 AU
opposition	4491 Jul 24 05:19	4°  03'04	6°12'26	opposition	4499 Aug 10 07:55	20°  28'45	1°12'24
direct	4491 Oct 12 18:28	2°  42'42		direct	4499 Oct 30 03:05	19°  11'50	
conjunction	4492 Jan 25 06:14	5°  07'36	5°31'37	conjunction	4500 Feb 10 06:07	21°  26'21	0°51'06
minimum elong	4492 Jan 25 06:28	5°  07'37	5°31'38	minimum elong	4500 Feb 10 06:09	21°  26'22	0°51'07
max. Earth dist.	4492 Jan 26 15:46	5°  10'40	32.53063 AU	max. Earth dist.	4500 Feb 12 07:10	21°  30'34	34.21152 AU
retrograde	4492 May 07 09:24	7°  30'56		retrograde	4500 May 24 04:54	23°  40'42	
min. Earth dist.	4492 Jul 24 06:37	6°  14'20	30.63157 AU	min. Earth dist.	4500 Aug 10 11:56	22°  27'46	32.32453 AU
opposition	4492 Jul 25 17:01	6°  12'07	5°34'26	opposition	4500 Aug 12 14:00	22°  24'41	0°36'17
direct	4492 Oct 14 05:05	4°  52'09		direct	4500 Nov 01 11:02	21°  08'08	
conjunction	4493 Jan 26 14:42	7°  15'42	4°56'03	conjunction	4501 Feb 12 09:11	23°  21'24	0°17'21
minimum elong	4493 Jan 26 14:54	7°  15'43	4°56'03	minimum elong	4501 Feb 12 09:12	23°  21'24	0°17'21
max. Earth dist.	4493 Jan 28 03:05	7°  19'00	32.71900 AU	max. Earth dist.	4501 Feb 14 11:11	23°  25'40	34.44090 AU
retrograde	4493 May 09 16:22	9°  37'53		retrograde	4501 May 26 07:59	25°  34'38	
min. Earth dist.	4493 Jul 26 15:08	8°  21'46	30.82178 AU	min. Earth dist.	4501 Aug 12 16:03	24°  22'04	32.55532 AU
opposition	4493 Jul 28 04:05	8°  19'23	4°56'25	opposition	4501 Aug 14 19:39	24°  18'55	0°00'40
direct	4493 Oct 16 18:14	6°  59'51		desc. node	4501 Aug 21 16:44	24°  08'50	
				direct	4501 Nov 03 15:19	23°  02'44	
conjunction	4494 Jan 28 22:10	9°  22'04	4°20'30	conjunction	4502 Feb 14 11:33	25°  14'44	0°-16'00
minimum elong	4494 Jan 28 22:20	9°  22'05	4°20'31	minimum elong	4502 Feb 14 11:32	25°  14'44	0°16'00
max. Earth dist.	4494 Jan 30 12:10	9°  25'29	32.91498 AU	behind sun begin	4502 Feb 14 10:23	25°  14'38	
retrograde	4494 May 12 01:28	11°  43'06		behind sun end	4502 Feb 14 12:41	25°  14'49	
min. Earth dist.	4494 Jul 28 22:43	10°  27'30	31.01976 AU	max. Earth dist.	4502 Feb 16 15:42	25°  19'08	34.67326 AU
opposition	4494 Jul 30 14:29	10°  24'58	4°18'29	retrograde	4502 May 28 08:51	27°  26'52	
direct	4494 Oct 19 03:42	9°  05'51		min. Earth dist.	4502 Aug 14 20:00	26°  14'38	32.78922 AU
conjunction	4495 Jan 31 05:12	11°  26'46	3°45'02	opposition	4502 Aug 17 00:34	26°  11'25	0°-34'-26
minimum elong	4495 Jan 31 05:21	11°  26'47	3°45'02	direct	4502 Nov 05 22:16	24°  55'36	
max. Earth dist.	4495 Feb 01 22:22	11°  30'27	33.11811 AU	conjunction	4503 Feb 16 13:10	27°  06'20	0°-48'-50
retrograde	4495 May 14 07:22	13°  46'41		minimum elong	4503 Feb 16 13:08	27°  06'20	0°48'51
min. Earth dist.	4495 Jul 31 06:56	12°  31'30	31.22460 AU	max. Earth dist.	4503 Feb 18 17:47	27°  10'45	34.90876 AU
opposition	4495 Aug 02 00:04	12°  28'54	3°40'42	retrograde	4503 May 30 12:20	29°  17'22	
direct	4495 Oct 21 14:09	11°  10'15		min. Earth dist.	4503 Aug 16 21:43	28°  05'32	33.02685 AU
conjunction	4496 Feb 02 11:23	13°  29'52	3°09'43	opposition	4503 Aug 19 04:36	28°  02'13	-1°-9'-1
minimum elong	4496 Feb 02 11:31	13°  29'52	3°09'44	direct	4503 Nov 08 01:27	26°  46'44	
max. Earth dist.	4496 Feb 04 05:32	13°  33'36	33.32749 AU	conjunction	4504 Feb 18 14:16	28°  56'15	-1°-21'-11
	4496 Mar 19 14:51	15° 		minimum elong	4504 Feb 18 14:13	28°  56'15	1°21'11
retrograde	4496 May 15 15:01	15°  48'39		max. Earth dist.	4504 Feb 20 21:29	29°  00'51	35.14789 AU
	4496 Jul 14 21:55	15°  3					
min. Earth dist.	4496 Aug 01 12:49	14°  34'01	31.43556 AU			0° 	
opposition	4496 Aug 03 08:56	14°  31'14	3°03'09	retrograde	4504 May 31 13:00	1°  06'13	

	4504 Aug 14 08:06	30°R		opposition	4512 Sep 03 14:50	13°K34'08	-5°-51'-53
min. Earth dist.	4504 Aug 18 00:40	29°K54'41	33.26836 AU	direct	4512 Nov 23 16:49	12°K22'04	
opposition	4504 Aug 20 08:09	29°K51'20	-1°-43'-1				
direct	4504 Nov 09 05:30	28°K36'13		conjunction	4513 Mar 04 23:05	14°K21'57	-5°-46'-24
	4505 Jan 27 15:43	0°K		minimum elong	4513 Mar 04 22:55	14°K21'56	5°46'25
				max. Earth dist.	4513 Mar 07 15:17	14°K26'56	37.42360 AU
conjunction	4505 Feb 19 14:35	0°K44'33	-1°-53'00	retrograde	4513 Jun 15 19:49	16°K23'24	
minimum elong	4505 Feb 19 14:31	0°K44'33	1°53'01	min. Earth dist.	4513 Sep 02 20:24	15°K15'06	35.56208 AU
max. Earth dist.	4505 Feb 21 22:27	0°K49'10	35.39091 AU	opposition	4513 Sep 05 13:24	15°K11'22	-6°-19'-58
retrograde	4505 Jun 02 13:17	2°K53'28		direct	4513 Nov 25 16:32	13°K59'38	
min. Earth dist.	4505 Aug 20 00:45	1°K42'23	33.51391 AU				
opposition	4505 Aug 22 10:58	1°K38'54	-2°-16'-25	conjunction	4514 Mar 06 19:03	15°K58'32	-6°-12'-48
direct	4505 Nov 11 09:40	0°K24'09		minimum elong	4514 Mar 06 18:53	15°K58'31	6°12'49
				max. Earth dist.	4514 Mar 09 11:40	16°K03'32	37.67976 AU
conjunction	4506 Feb 21 14:26	2°K31'20	-2°-24'-16	retrograde	4514 Jun 17 13:35	17°K59'06	
minimum elong	4506 Feb 21 14:21	2°K31'20	2°24'16	min. Earth dist.	4514 Sep 04 17:18	16°K51'07	35.81970 AU
max. Earth dist.	4506 Feb 24 00:26	2°K36'05	35.63770 AU	opposition	4514 Sep 07 11:13	16°K47'20	-6°-47'-20
retrograde	4506 Jun 04 11:59	4°K39'14		direct	4514 Nov 27 16:34	15°K35'55	
min. Earth dist.	4506 Aug 22 02:23	3°K28'29	33.76337 AU				
opposition	4506 Aug 24 13:18	3°K24'58	-2°-49'-11	conjunction	4515 Mar 08 14:19	17°K33'51	-6°-38'-33
direct	4506 Nov 13 13:41	2°K10'37		minimum elong	4515 Mar 08 14:08	17°K33'50	6°38'34
				max. Earth dist.	4515 Mar 11 07:07	17°K38'49	37.93557 AU
conjunction	4507 Feb 23 13:41	4°K16'41	-2°-54'-58	retrograde	4515 Jun 19 08:34	19°K33'34	
minimum elong	4507 Feb 23 13:35	4°K16'40	2°54'59	min. Earth dist.	4515 Sep 06 13:59	18°K25'51	36.07750 AU
max. Earth dist.	4507 Feb 26 00:49	4°K21'29	35.88804 AU	opposition	4515 Sep 09 08:38	18°K22'04	-7°-14'-2
retrograde	4507 Jun 06 09:43	6°K23'35		direct	4515 Nov 29 13:54	17°K10'57	
min. Earth dist.	4507 Aug 24 02:11	5°K13'16	34.01601 AU				
opposition	4507 Aug 26 14:53	5°K09'39	-3°-21'-19	conjunction	4516 Mar 09 09:18	19°K07'56	-7°-3'-40
direct	4507 Nov 15 17:21	3°K55'41		minimum elong	4516 Mar 09 09:06	19°K07'55	7°03'41
				max. Earth dist.	4516 Mar 12 03:41	19°K13'00	38.19167 AU
conjunction	4508 Feb 25 12:23	6°K00'40	-3°-25'-4	retrograde	4516 Jun 20 02:47	21°K06'49	
minimum elong	4508 Feb 25 12:17	6°K00'39	3°25'05	min. Earth dist.	4516 Sep 07 10:36	19°K59'22	36.33572 AU
max. Earth dist.	4508 Feb 28 00:28	6°K05'31	36.14102 AU	opposition	4516 Sep 10 05:23	19°K55'35	-7°-40'-1
retrograde	4508 Jun 07 08:26	8°K06'37		direct	4516 Nov 30 11:01	18°K44'46	
min. Earth dist.	4508 Aug 25 02:03	6°K56'40	34.27134 AU				
opposition	4508 Aug 27 15:54	6°K53'02	-3°-52'-47	conjunction	4517 Mar 11 03:40	20°K40'51	-7°-28'-7
direct	4508 Nov 16 17:42	5°K39'27		minimum elong	4517 Mar 11 03:28	20°K40'50	7°28'09
				max. Earth dist.	4517 Mar 13 21:49	20°K45'51	38.44843 AU
conjunction	4509 Feb 26 10:45	7°K43'22	-3°-54'-34	retrograde	4517 Jun 21 23:06	22°K38'55	
minimum elong	4509 Feb 26 10:37	7°K43'21	3°54'36	min. Earth dist.	4517 Sep 09 05:09	21°K31'48	36.59490 AU
max. Earth dist.	4509 Mar 01 00:37	7°K48'19	36.39622 AU	opposition	4517 Sep 12 01:47	21°K27'57	-8°-5'-17
retrograde	4509 Jun 09 05:41	9°K48'24		direct	4517 Dec 02 05:24	20°K17'28	
min. Earth dist.	4509 Aug 27 02:03	8°K38'48	34.52847 AU				
opposition	4509 Aug 29 16:29	8°K35'08	-4°-23'-35	conjunction	4518 Mar 12 21:38	22°K12'39	-7°-51'-56
direct	4509 Nov 18 18:57	7°K21'57		minimum elong	4518 Mar 12 21:26	22°K12'38	7°51'57
				max. Earth dist.	4518 Mar 15 17:34	22°K17'45	38.70602 AU
conjunction	4510 Feb 28 08:22	9°K24'49	-4°-23'-28	retrograde	4518 Jun 23 17:18	24°K09'57	
minimum elong	4510 Feb 28 08:14	9°K24'49	4°23'28	min. Earth dist.	4518 Sep 11 01:30	23°K03'04	36.85487 AU
max. Earth dist.	4510 Mar 02 22:11	9°K29'44	36.65273 AU	opposition	4518 Sep 13 21:47	22°K59'15	-8°-29'-52
retrograde	4510 Jun 11 05:39	11°K28'57		direct	4518 Dec 04 01:36	21°K49'06	
min. Earth dist.	4510 Aug 29 00:26	10°K19'45	34.78684 AU				
opposition	4510 Aug 31 16:32	10°K16'01	-4°-53'-42	conjunction	4519 Mar 14 15:17	23°K43'26	-8°-15'-6
direct	4510 Nov 20 16:54	9°K03'13		minimum elong	4519 Mar 14 15:04	23°K43'25	8°15'06
				max. Earth dist.	4519 Mar 17 11:06	23°K48'30	38.96434 AU
conjunction	4511 Mar 02 05:50	11°K05'04	-4°-51'-44	retrograde	4519 Jun 25 11:20	25°K39'57	
minimum elong	4511 Mar 02 05:40	11°K05'04	4°51'45	min. Earth dist.	4519 Sep 12 19:16	24°K33'26	37.11531 AU
max. Earth dist.	4511 Mar 04 21:20	11°K10'05	36.90988 AU	opposition	4519 Sep 15 17:00	24°K29'33	-8°-53'-44
retrograde	4511 Jun 13 02:45	13°K08'18		direct	4519 Dec 05 21:28	23°K19'43	
min. Earth dist.	4511 Aug 31 00:20	11°K59'22	35.04555 AU				
opposition	4511 Sep 02 15:56	11°K55'41	-5°-23'-8	conjunction	4520 Mar 15 08:29	25°K13'15	-8°-37'-36
direct	4511 Nov 22 16:39	10°K43'15		minimum elong	4520 Mar 15 08:17	25°K13'14	8°37'38
				max. Earth dist.	4520 Mar 18 05:09	25°K18'20	39.22278 AU
conjunction	4512 Mar 03 02:44	12°K44'07	-5°-19'-23	retrograde	4520 Jun 26 04:24	27°K09'01	
minimum elong	4512 Mar 03 02:34	12°K44'06	5°19'23	min. Earth dist.	4520 Sep 13 14:26	26°K02'46	37.37582 AU
max. Earth dist.	4512 Mar 05 17:50	12°K49'04	37.16704 AU	opposition	4520 Sep 16 12:07	25°K58'54	-9°-16'-55
retrograde	4512 Jun 14 00:00	14°K46'27		direct	4520 Dec 06 16:46	24°K49'25	
min. Earth dist.	4512 Aug 31 21:38	13°K37'54	35.30404 AU				

conjunction	4521 Mar 17 01:18	26° ✕ 42'08	-8°-59'-29	direct	4528 Dec 18 16:03	6° Υ 13'32	
minimum elong	4521 Mar 17 01:05	26° ✕ 42'07	8°59'30				
max. Earth dist.	4521 Mar 19 22:44	26° ✕ 47'15	39.48099 AU	conjunction	4529 Mar 28 04:11	8° Υ 00'13	-11°-32'-52
retrograde	4521 Jun 27 18:39	28° ✕ 37'11		minimum elong	4529 Mar 28 03:59	8° Υ 00'13	11°32'52
min. Earth dist.	4521 Sep 15 08:38	27° ✕ 31'14	37.63562 AU	max. Earth dist.	4529 Mar 31 00:58	8° Υ 05'04	41.47404 AU
opposition	4521 Sep 18 06:45	27° ✕ 27'21	-9°-39'-25	retrograde	4529 Jul 08 21:48	9° Υ 49'49	
direct	4521 Dec 08 13:45	26° ✕ 18'12		min. Earth dist.	4529 Sep 26 23:13	8° Υ 45'37	39.63729 AU
				opposition	4529 Sep 29 21:45	8° Υ 41'50	-12°-16'-28
conjunction	4522 Mar 18 17:46	28° ✕ 10'07	-9°-20'-44	direct	4529 Dec 20 06:01	7° Υ 34'47	
minimum elong	4522 Mar 18 17:34	28° ✕ 10'06	9°20'46				
max. Earth dist.	4522 Mar 21 14:42	28° ✕ 15'11	39.73816 AU	conjunction	4530 Mar 29 18:05	9° Υ 20'48	-11°-49'-25
	4522 Jun 10 22:29	0° Υ		minimum elong	4530 Mar 29 17:52	9° Υ 20'48	11°49'26
retrograde	4522 Jun 29 11:53	0° Υ 04'28		max. Earth dist.	4530 Apr 01 16:03	9° Υ 25'42	41.71433 AU
	4522 Jul 18 08:32	30° ℞		retrograde	4530 Jul 10 12:29	11° Υ 09'47	
min. Earth dist.	4522 Sep 17 02:20	28° ✕ 58'49	37.89429 AU	min. Earth dist.	4530 Sep 28 15:19	10° Υ 05'44	39.87915 AU
opposition	4522 Sep 20 01:00	28° ✕ 54'56	-10°-1'-15	opposition	4530 Oct 01 12:54	10° Υ 02'02	-12°-33'-18
direct	4522 Dec 10 07:31	27° ✕ 46'05		direct	4530 Dec 21 20:29	8° Υ 55'15	
conjunction	4523 Mar 20 10:05	29° ✕ 37'14	-9°-41'-22	conjunction	4531 Mar 31 07:35	10° Υ 40'37	-12°-5'-23
minimum elong	4523 Mar 20 09:52	29° ✕ 37'13	9°41'23	minimum elong	4531 Mar 31 07:24	10° Υ 40'36	12°05'24
max. Earth dist.	4523 Mar 23 08:06	29° ✕ 42'20	39.99373 AU	max. Earth dist.	4531 Apr 03 05:04	10° Υ 45'26	41.95363 AU
	4523 Apr 02 12:35	0° Υ		retrograde	4531 Jul 12 01:57	12° Υ 29'00	
retrograde	4523 Jul 01 04:13	1° Υ 30'54		min. Earth dist.	4531 Sep 30 04:56	11° Υ 25'14	40.11977 AU
min. Earth dist.	4523 Sep 18 21:09	0° Υ 25'26	38.15086 AU	opposition	4531 Oct 03 03:38	11° Υ 21'29	-12°-49'-32
opposition	4523 Sep 21 18:53	0° Υ 21'37	-10°-22'-26	direct	4531 Dec 23 10:49	10° Υ 14'57	
	4523 Oct 08 11:50	30° ℞					
direct	4523 Dec 12 01:28	29° ✕ 13'04		conjunction	4532 Mar 31 20:43	11° Υ 59'43	-12°-20'-48
	4524 Feb 11 05:04	0° Υ		minimum elong	4532 Mar 31 20:31	11° Υ 59'42	12°20'49
				max. Earth dist.	4532 Apr 03 18:25	12° Υ 04'32	42.19148 AU
conjunction	4524 Mar 21 01:59	1° Υ 03'27	-10°-1'-25	retrograde	4532 Jul 12 14:46	13° Υ 47'32	
minimum elong	4524 Mar 21 01:46	1° Υ 03'26	10°01'26	min. Earth dist.	4532 Sep 30 20:04	12° Υ 43'58	40.35894 AU
max. Earth dist.	4524 Mar 23 22:55	1° Υ 08'27	40.24693 AU	opposition	4532 Oct 03 18:11	12° Υ 40'16	-13°-5'-11
retrograde	4524 Jul 01 21:50	2° Υ 56'25		direct	4532 Dec 24 01:33	11° Υ 34'01	
min. Earth dist.	4524 Sep 19 13:36	1° Υ 51'14	38.40484 AU				
opposition	4524 Sep 22 12:16	1° Υ 47'23	-10°-42'-59	conjunction	4533 Apr 02 09:45	13° Υ 18'11	-12°-35'-39
direct	4524 Dec 12 17:31	0° Υ 39'07		minimum elong	4533 Apr 02 09:34	13° Υ 18'10	12°35'40
				max. Earth dist.	4533 Apr 05 07:52	13° Υ 23'00	42.42782 AU
conjunction	4525 Mar 22 17:38	2° Υ 28'45	-10°-20'-52	retrograde	4533 Jul 14 01:41	15° Υ 05'27	
minimum elong	4525 Mar 22 17:26	2° Υ 28'44	10°20'52	min. Earth dist.	4533 Oct 02 10:21	14° Υ 02'07	40.59612 AU
max. Earth dist.	4525 Mar 25 15:07	2° Υ 33'45	40.49730 AU	opposition	4533 Oct 05 08:23	13° Υ 58'26	-13°-20'-15
retrograde	4525 Jul 03 13:46	4° Υ 21'01		direct	4533 Dec 25 17:49	12° Υ 52'27	
min. Earth dist.	4525 Sep 21 07:57	3° Υ 16'00	38.65597 AU				
opposition	4525 Sep 24 05:32	3° Υ 12'13	-11°-2'-55	conjunction	4534 Apr 03 22:19	14° Υ 36'02	-12°-49'-58
direct	4525 Dec 14 10:47	2° Υ 04'13		minimum elong	4534 Apr 03 22:08	14° Υ 36'01	12°49'59
				max. Earth dist.	4534 Apr 06 19:30	14° Υ 40'46	42.66193 AU
conjunction	4526 Mar 24 08:52	3° Υ 53'05	-10°-39'-44	retrograde	4534 Jul 15 15:19	16° Υ 22'47	
minimum elong	4526 Mar 24 08:39	3° Υ 53'04	10°39'45	min. Earth dist.	4534 Oct 04 00:09	15° Υ 19'41	40.83093 AU
max. Earth dist.	4526 Mar 27 05:56	3° Υ 58'02	40.74489 AU	opposition	4534 Oct 06 22:21	15° Υ 16'00	-13°-34'-46
retrograde	4526 Jul 05 03:40	5° Υ 44'39		direct	4534 Dec 27 07:23	14° Υ 10'18	
min. Earth dist.	4526 Sep 23 00:12	4° Υ 39'51	38.90420 AU				
opposition	4526 Sep 25 22:11	4° Υ 36'04	-11°-22'-14	conjunction	4535 Apr 05 10:57	15° Υ 53'18	-13°-3'-46
direct	4526 Dec 16 04:47	3° Υ 28'18		minimum elong	4535 Apr 05 10:48	15° Υ 53'17	13°03'47
				max. Earth dist.	4535 Apr 08 08:53	15° Υ 58'04	42.89325 AU
conjunction	4527 Mar 25 23:41	5° Υ 16'26	-10°-58'-1	retrograde	4535 Jul 17 04:32	17° Υ 39'32	
minimum elong	4527 Mar 25 23:29	5° Υ 16'25	10°58'02	min. Earth dist.	4535 Oct 05 15:03	16° Υ 36'35	41.06250 AU
max. Earth dist.	4527 Mar 28 20:25	5° Υ 21'19	40.98975 AU	opposition	4535 Oct 08 11:52	16° Υ 32'59	-13°-48'-44
retrograde	4527 Jul 06 17:53	7° Υ 07'19		direct	4535 Dec 28 21:13	15° Υ 27'32	
min. Earth dist.	4527 Sep 24 16:35	6° Υ 02'41	39.15019 AU				
opposition	4527 Sep 27 14:22	5° Υ 58'56	-11°-40'-55	conjunction	4536 Apr 05 23:16	17° Υ 09'59	-13°-17'-3
direct	4527 Dec 17 21:44	4° Υ 51'24		minimum elong	4536 Apr 05 23:05	17° Υ 09'58	13°17'04
				max. Earth dist.	4536 Apr 08 19:42	17° Υ 14'37	43.12120 AU
conjunction	4528 Mar 26 14:16	6° Υ 38'48	-11°-15'-44	retrograde	4536 Jul 17 19:57	18° Υ 55'42	
minimum elong	4528 Mar 26 14:03	6° Υ 38'47	11°15'46	min. Earth dist.	4536 Oct 06 03:54	17° Υ 52'59	41.29040 AU
max. Earth dist.	4528 Mar 29 11:54	6° Υ 43'43	41.23265 AU	opposition	4536 Oct 09 01:12	17° Υ 49'22	-14°-2'-11
retrograde	4528 Jul 07 05:53	8° Υ 29'01		direct	4536 Dec 29 07:44	16° Υ 44'09	
min. Earth dist.	4528 Sep 25 08:44	7° Υ 24'34	39.39433 AU				
opposition	4528 Sep 28 06:13	7° Υ 20'50	-11°-59'00	conjunction	4537 Apr 07 11:15	18° Υ 26'03	-13°-29'-52

minimum elong	4537 Apr 07 11:06	18° Υ 26'02	13°29'53	min. Earth dist.	4545 Oct 17 19:08	28° Υ 49'13	43.19970 AU
max. Earth dist.	4537 Apr 10 07:40	18° Υ 30'39	43.34519 AU	opposition	4545 Oct 20 12:25	28° Υ 45'55	-15°-40'-46
retrograde	4537 Jul 19 08:07	20° Υ 11'14		direct	4546 Jan 09 23:55	27° Υ 42'26	
min. Earth dist.	4537 Oct 07 18:41	19° Υ 08'37	41.51427 AU				
opposition	4537 Oct 10 14:27	19° Υ 05'06	-14°-15'-8	conjunction	4546 Apr 18 12:10	29° Υ 19'41	-15°-3'-45
direct	4537 Dec 30 20:13	18° Υ 00'06		minimum elong	4546 Apr 18 12:04	29° Υ 19'41	15°03'46
				max. Earth dist.	4546 Apr 21 05:21	29° Υ 23'54	45.22819 AU
conjunction	4538 Apr 08 23:11	19° Υ 41'26	-13°-42'-12		4546 May 15 06:17	0° \mathcal{B}	
minimum elong	4538 Apr 08 23:00	19° Υ 41'25	13°42'12	retrograde	4546 Jul 30 04:29	1° \mathcal{B} 00'31	
max. Earth dist.	4538 Apr 11 19:07	19° Υ 45'59	43.56529 AU		4546 Oct 18 15:05	30° $\mathcal{R}\Upsilon$	
retrograde	4538 Jul 20 17:08	21° Υ 26'04		min. Earth dist.	4546 Oct 19 05:29	29° Υ 59'16	43.39954 AU
min. Earth dist.	4538 Oct 09 07:22	20° Υ 23'37	41.73410 AU	opposition	4546 Oct 21 22:58	29° Υ 55'58	-15°-49'-18
opposition	4538 Oct 12 03:05	20° Υ 20'07	-14°-27'-35	direct	4547 Jan 11 09:55	28° Υ 52'42	
direct	4539 Jan 01 11:13	19° Υ 15'18			4547 Mar 31 11:33	0° \mathcal{B}	
conjunction	4539 Apr 10 10:38	20° Υ 56'04	-13°-54'-3	conjunction	4547 Apr 19 22:01	0° \mathcal{B} 29'32	-15°-11'-54
minimum elong	4539 Apr 10 10:29	20° Υ 56'04	13°54'05	minimum elong	4547 Apr 19 21:54	0° \mathcal{B} 29'31	15°11'56
max. Earth dist.	4539 Apr 13 05:29	21° Υ 00'32	43.78155 AU	max. Earth dist.	4547 Apr 22 15:29	0° \mathcal{B} 33'44	45.42492 AU
retrograde	4539 Jul 22 03:22	22° Υ 40'11		retrograde	4547 Jul 31 15:26	2° \mathcal{B} 09'57	
min. Earth dist.	4539 Oct 10 20:18	21° Υ 37'52	41.95050 AU	min. Earth dist.	4547 Oct 20 17:51	1° \mathcal{B} 08'49	43.59570 AU
opposition	4539 Oct 13 15:34	21° Υ 34'23	-14°-39'-32	opposition	4547 Oct 23 09:29	1° \mathcal{B} 05'37	-15°-57'-24
direct	4540 Jan 03 01:01	20° Υ 29'45		direct	4548 Jan 12 20:17	0° \mathcal{B} 02'34	
conjunction	4540 Apr 10 21:52	22° Υ 09'58	-14°-5'-26	conjunction	4548 Apr 20 07:38	1° \mathcal{B} 38'57	-15°-19'-38
minimum elong	4540 Apr 10 21:43	22° Υ 09'57	14°05'27	minimum elong	4548 Apr 20 07:34	1° \mathcal{B} 38'57	15°19'39
max. Earth dist.	4540 Apr 13 17:22	22° Υ 14'27	43.99468 AU	max. Earth dist.	4548 Apr 22 23:58	1° \mathcal{B} 43'05	45.61778 AU
retrograde	4540 Jul 22 12:36	23° Υ 53'34		retrograde	4548 Aug 01 01:51	3° \mathcal{B} 18'59	
min. Earth dist.	4540 Oct 11 09:20	22° Υ 51'20	42.16393 AU	min. Earth dist.	4548 Oct 21 03:56	2° \mathcal{B} 18'02	43.78757 AU
opposition	4540 Oct 14 03:42	22° Υ 47'55	-14°-50'-59	opposition	4548 Oct 23 19:43	2° \mathcal{B} 14'50	-16°-5'-5
direct	4541 Jan 03 15:28	21° Υ 43'28		direct	4549 Jan 13 04:58	1° \mathcal{B} 11'58	
conjunction	4541 Apr 12 08:46	23° Υ 23'07	-14°-16'-20	conjunction	4549 Apr 21 17:09	2° \mathcal{B} 47'58	-15°-26'-59
minimum elong	4541 Apr 12 08:38	23° Υ 23'06	14°16'22	minimum elong	4549 Apr 21 17:02	2° \mathcal{B} 47'58	15°27'00
max. Earth dist.	4541 Apr 15 03:09	23° Υ 27'30	44.20534 AU	max. Earth dist.	4549 Apr 24 08:26	2° \mathcal{B} 52'00	45.80611 AU
retrograde	4541 Jul 24 01:10	25° Υ 06'13		retrograde	4549 Aug 02 11:42	4° \mathcal{B} 27'35	
min. Earth dist.	4541 Oct 12 20:26	24° Υ 04'11	42.37520 AU	min. Earth dist.	4549 Oct 22 15:36	3° \mathcal{B} 26'43	43.97485 AU
opposition	4541 Oct 15 15:34	24° Υ 00'44	-15°-1'-56	opposition	4549 Oct 25 05:56	3° \mathcal{B} 23'37	-16°-12'-23
direct	4542 Jan 05 02:34	22° Υ 56'27		direct	4550 Jan 14 13:57	2° \mathcal{B} 20'56	
conjunction	4542 Apr 13 19:27	24° Υ 35'35	-14°-26'-45	conjunction	4550 Apr 23 02:34	3° \mathcal{B} 56'31	-15°-33'-57
minimum elong	4542 Apr 13 19:19	24° Υ 35'35	14°26'46	minimum elong	4550 Apr 23 02:30	3° \mathcal{B} 56'30	15°33'58
max. Earth dist.	4542 Apr 16 14:28	24° Υ 39'59	44.41394 AU	max. Earth dist.	4550 Apr 25 17:38	4° \mathcal{B} 00'31	45.98986 AU
retrograde	4542 Jul 25 13:53	26° Υ 18'11		retrograde	4550 Aug 03 18:32	5° \mathcal{B} 35'44	
min. Earth dist.	4542 Oct 14 09:15	25° Υ 16'15	42.58446 AU	min. Earth dist.	4550 Oct 24 02:21	4° \mathcal{B} 34'58	44.15727 AU
opposition	4542 Oct 17 03:14	25° Υ 12'53	-15°-12'-22	opposition	4550 Oct 26 15:46	4° \mathcal{B} 31'54	-16°-19'-17
direct	4543 Jan 06 12:41	24° Υ 08'47		direct	4551 Jan 16 02:10	3° \mathcal{B} 29'23	
conjunction	4543 Apr 15 06:01	25° Υ 47'25	-14°-36'-42	conjunction	4551 Apr 24 11:39	5° \mathcal{B} 04'33	-15°-40'-33
minimum elong	4543 Apr 15 05:54	25° Υ 47'25	14°36'43	minimum elong	4551 Apr 24 11:34	5° \mathcal{B} 04'32	15°40'34
max. Earth dist.	4543 Apr 18 00:34	25° Υ 51'46	44.62075 AU	max. Earth dist.	4551 Apr 27 00:53	5° \mathcal{B} 08'26	46.16898 AU
retrograde	4543 Jul 27 00:24	27° Υ 29'32		retrograde	4551 Aug 05 03:18	6° \mathcal{B} 43'22	
min. Earth dist.	4543 Oct 15 19:50	26° Υ 27'48	42.79173 AU	min. Earth dist.	4551 Oct 25 12:12	5° \mathcal{B} 42'44	44.33542 AU
opposition	4543 Oct 18 14:20	26° Υ 24'25	-15°-22'-19	opposition	4551 Oct 28 01:17	5° \mathcal{B} 39'41	-16°-25'-48
direct	4544 Jan 07 22:32	25° Υ 20'31		direct	4552 Jan 17 12:46	4° \mathcal{B} 37'19	
conjunction	4544 Apr 15 16:13	26° Υ 58'41	-14°-46'-10	conjunction	4552 Apr 24 20:35	6° \mathcal{B} 12'04	-15°-46'-46
minimum elong	4544 Apr 15 16:06	26° Υ 58'40	14°46'11	minimum elong	4552 Apr 24 20:32	6° \mathcal{B} 12'04	15°46'47
max. Earth dist.	4544 Apr 18 10:12	27° Υ 02'58	44.82553 AU	max. Earth dist.	4552 Apr 27 10:15	6° \mathcal{B} 15'58	46.34411 AU
retrograde	4544 Jul 27 09:54	28° Υ 40'21		retrograde	4552 Aug 05 12:56	7° \mathcal{B} 50'30	
min. Earth dist.	4544 Oct 16 07:36	27° Υ 38'45	42.99700 AU	min. Earth dist.	4552 Oct 25 23:11	6° \mathcal{B} 49'55	44.50982 AU
opposition	4544 Oct 19 01:31	27° Υ 35'24	-15°-31'-47	opposition	4552 Oct 28 10:45	6° \mathcal{B} 46'58	-16°-31'-55
direct	4545 Jan 08 10:16	26° Υ 31'43		direct	4553 Jan 17 23:05	5° \mathcal{B} 44'44	
conjunction	4545 Apr 17 02:17	28° Υ 09'25	-14°-55'-11	conjunction	4553 Apr 26 05:09	7° \mathcal{B} 19'05	-15°-52'-36
minimum elong	4545 Apr 17 02:10	28° Υ 09'24	14°55'13	minimum elong	4553 Apr 26 05:05	7° \mathcal{B} 19'05	15°52'36
max. Earth dist.	4545 Apr 19 20:57	28° Υ 13'44	45.02820 AU	max. Earth dist.	4553 Apr 28 17:40	7° \mathcal{B} 22'53	46.51598 AU
retrograde	4545 Jul 28 17:07	29° Υ 50'39		retrograde	4553 Aug 07 00:04	8° \mathcal{B} 57'08	

min. Earth dist.	4553 Oct 27 07:48	7°8'56"42	44.68113 AU	max. Earth dist.	4561 May 07 04:10	16°8'04"25	47.78405 AU
opposition	4553 Oct 29 19:54	7°8'53"44	-16°-37'-37	retrograde	4561 Aug 15 14:32	17°8'36"28	
direct	4554 Jan 19 05:53	6°8'51"39		min. Earth dist.	4561 Nov 05 09:17	16°8'36"53	45.94053 AU
				opposition	4561 Nov 07 15:01	16°8'34"17	-17°-9'-31
conjunction	4554 Apr 27 13:39	8°8'25"37	-15°-58'-2	direct	4562 Jan 28 00:43	15°8'33"26	
minimum elong	4554 Apr 27 13:36	8°8'25"37	15°58'04				
max. Earth dist.	4554 Apr 30 01:47	8°8'29"23	46.68492 AU	conjunction	4562 May 06 05:01	17°8'04"46	-16°-28'-24
retrograde	4554 Aug 08 08:29	10°8'03"18		minimum elong	4562 May 06 05:00	17°8'04"46	16°28'25
min. Earth dist.	4554 Oct 28 18:08	9°8'02"56	44.84975 AU	max. Earth dist.	4562 May 08 11:45	17°8'08"06	47.92407 AU
opposition	4554 Oct 31 04:51	9°8'00"03	-16°-42'-56	retrograde	4562 Aug 16 19:30	18°8'39"52	
direct	4555 Jan 20 13:49	7°8'58"07		min. Earth dist.	4562 Nov 06 18:42	17°8'40"18	46.07835 AU
				opposition	4562 Nov 08 22:39	17°8'37"47	-17°-11'-59
conjunction	4555 Apr 28 22:06	9°8'31"43	-16°-3'-5	direct	4563 Jan 29 11:49	16°8'37"02	
minimum elong	4555 Apr 28 22:03	9°8'31"43	16°03'06				
max. Earth dist.	4555 May 01 10:21	9°8'35"28	46.85138 AU	conjunction	4563 May 07 12:25	18°8'08"03	-16°-30'-44
retrograde	4555 Aug 09 13:37	11°8'09"02		minimum elong	4563 May 07 12:26	18°8'08"03	16°30'45
min. Earth dist.	4555 Oct 30 02:59	10°8'08"49	45.01566 AU	max. Earth dist.	4563 May 09 17:13	18°8'11"15	48.05906 AU
opposition	4555 Nov 01 13:35	10°8'05"56	-16°-47'-50	retrograde	4563 Aug 18 04:11	19°8'42"49	
direct	4556 Jan 22 00:07	9°8'04"10		min. Earth dist.	4563 Nov 08 02:13	18°8'43"20	46.21134 AU
				opposition	4563 Nov 10 06:07	18°8'40"50	-17°-14'-8
conjunction	4556 Apr 29 06:05	10°8'37"26	-16°-7'-45	direct	4564 Jan 30 19:11	17°8'40"11	
minimum elong	4556 Apr 29 06:03	10°8'37"26	16°07'47				
max. Earth dist.	4556 May 01 16:56	10°8'41"05	47.01519 AU	conjunction	4564 May 07 19:29	19°8'10"52	-16°-32'-46
retrograde	4556 Aug 09 21:11	12°8'14"24		minimum elong	4564 May 07 19:29	19°8'10"52	16°32'48
min. Earth dist.	4556 Oct 30 11:49	11°8'14"20	45.17897 AU	max. Earth dist.	4564 May 09 23:43	19°8'14"01	48.18942 AU
opposition	4556 Nov 01 22:15	11°8'11"27	-16°-52'-21	retrograde	4564 Aug 18 12:26	20°8'45"19	
direct	4557 Jan 22 09:31	10°8'09"52		min. Earth dist.	4564 Nov 08 11:34	19°8'45"50	46.34009 AU
				opposition	4564 Nov 10 13:35	19°8'43"25	-17°-15'-58
conjunction	4557 Apr 30 14:12	11°8'42"47	-16°-12'-3	direct	4565 Jan 31 01:48	18°8'42"52	
minimum elong	4557 Apr 30 14:11	11°8'42"47	16°12'04				
max. Earth dist.	4557 May 03 01:32	11°8'46"27	47.17633 AU	conjunction	4565 May 09 02:36	20°8'13"14	-16°-34'-29
retrograde	4557 Aug 11 04:39	13°8'19"27		minimum elong	4565 May 09 02:38	20°8'13"14	16°34'31
min. Earth dist.	4557 Oct 31 21:43	12°8'19"27	45.33930 AU	max. Earth dist.	4565 May 11 06:33	20°8'16"22	48.31607 AU
opposition	4557 Nov 03 06:44	12°8'16"39	-16°-56'-29	retrograde	4565 Aug 19 18:18	21°8'47"23	
direct	4558 Jan 23 19:44	11°8'15"14		min. Earth dist.	4565 Nov 09 18:42	20°8'47"59	46.46526 AU
				opposition	4565 Nov 11 20:39	20°8'45"34	-17°-17'-29
conjunction	4558 May 01 22:06	12°8'47"48	-16°-15'-58	direct	4566 Feb 01 08:35	19°8'45"06	
minimum elong	4558 May 01 22:04	12°8'47"48	16°16'01				
max. Earth dist.	4558 May 04 08:07	12°8'51"23	47.33443 AU	conjunction	4566 May 10 09:25	21°8'15"12	-16°-35'-53
retrograde	4558 Aug 12 14:49	14°8'24"09		minimum elong	4566 May 10 09:26	21°8'15"12	16°35'55
min. Earth dist.	4558 Nov 02 05:46	13°8'24"20	45.49624 AU	max. Earth dist.	4566 May 12 11:47	21°8'18"14	48.43938 AU
opposition	4558 Nov 04 14:58	13°8'21"32	-17°00'-15	retrograde	4566 Aug 21 00:26	22°8'49"03	
direct	4559 Jan 25 02:50	12°8'20"16		min. Earth dist.	4566 Nov 11 02:29	21°8'49"43	46.58738 AU
				opposition	4566 Nov 13 03:43	21°8'47"21	-17°-18'-39
conjunction	4559 May 03 05:56	13°8'52"32	-16°-19'-34	direct	4567 Feb 02 15:22	20°8'46"59	
minimum elong	4559 May 03 05:55	13°8'52"32	16°19'34				
max. Earth dist.	4559 May 05 15:18	13°8'56"04	47.48874 AU	conjunction	4567 May 11 16:16	22°8'16"48	-16°-36'-58
	4559 Jun 22 23:54	15°8'		minimum elong	4567 May 11 16:19	22°8'16"49	16°37'00
retrograde	4559 Aug 14 01:38	15°8'28"35		max. Earth dist.	4567 May 13 19:03	22°8'19"51	48.55978 AU
	4559 Oct 06 07:48	15°8'		retrograde	4567 Aug 22 04:59	23°8'50"23	
min. Earth dist.	4559 Nov 03 15:42	14°8'28"49	45.64915 AU	min. Earth dist.	4567 Nov 12 10:25	22°8'51"06	46.70650 AU
opposition	4559 Nov 05 23:05	14°8'26"07	-17°-3'-39	opposition	4567 Nov 14 10:30	22°8'48"48	-17°-19'-30
direct	4560 Jan 26 08:04	13°8'25"00		direct	4568 Feb 04 00:28	21°8'48"32	
conjunction	4560 May 03 13:47	14°8'56"58	-16°-22'-49	conjunction	4568 May 11 22:52	23°8'18"07	-16°-37'-43
minimum elong	4560 May 03 13:46	14°8'56"58	16°22'50	minimum elong	4568 May 11 22:54	23°8'18"07	16°37'44
	4560 May 05 15:17	15°8'		max. Earth dist.	4568 May 14 00:13	23°8'21"04	48.67749 AU
max. Earth dist.	4560 May 05 22:35	15°8'00"27	47.63886 AU	retrograde	4568 Aug 22 12:44	24°8'51"27	
retrograde	4560 Aug 14 08:12	16°8'32"41		min. Earth dist.	4568 Nov 12 16:50	23°8'52"18	46.82293 AU
min. Earth dist.	4560 Nov 04 00:15	15°8'33"02	45.79736 AU	opposition	4568 Nov 14 17:14	23°8'49"59	-17°-20'00
opposition	4560 Nov 06 07:03	15°8'30"23	-17°-6'-45	direct	4569 Feb 04 07:21	22°8'49"51	
	4560 Dec 03 11:40	15°8'					
direct	4561 Jan 26 15:47	14°8'29"24		conjunction	4569 May 13 05:18	24°8'19"11	-16°-38'-10
	4561 Mar 20 07:41	15°8'		minimum elong	4569 May 13 05:20	24°8'19"11	16°38'11
				max. Earth dist.	4569 May 15 06:25	24°8'22"06	48.79234 AU
conjunction	4561 May 04 21:18	16°8'01"04	-16°-25'-45	retrograde	4569 Aug 23 22:05	25°8'52"17	
minimum elong	4561 May 04 21:18	16°8'01"04	16°25'46	min. Earth dist.	4569 Nov 14 01:16	24°8'53"11	46.93637 AU

opposition	4569 Nov 15 23:59	24°♄50'57	-17°-20'-12	retrograde	4577 Aug 31 20:28	3°♄52'14	
direct	4570 Feb 05 12:18	23°♄50'57		min. Earth dist.	4577 Nov 22 10:24	2°♄53'31	47.68885 AU
				opposition	4577 Nov 24 00:57	2°♄51'42	-17°-11'-31
conjunction	4570 May 14 11:52	25°♄20'04	-16°-38'-17	direct	4578 Feb 13 13:45	1°♄52'25	
minimum elong	4570 May 14 11:55	25°♄20'04	16°38'18				
max. Earth dist.	4570 May 16 12:28	25°♄22'57	48.90421 AU	conjunction	4578 May 22 12:57	3°♄19'52	-16°-29'-32
retrograde	4570 Aug 25 05:05	26°♄52'57		minimum elong	4578 May 22 13:03	3°♄19'53	16°29'34
min. Earth dist.	4570 Nov 15 07:41	25°♄53'58	47.04642 AU	max. Earth dist.	4578 May 24 04:46	3°♄22'12	49.64071 AU
opposition	4570 Nov 17 06:17	25°♄51'45	-17°-20'-4	retrograde	4578 Sep 02 01:01	4°♄51'00	
direct	4571 Feb 06 16:23	24°♄51'53		min. Earth dist.	4578 Nov 23 15:54	3°♄52'21	47.76399 AU
				opposition	4578 Nov 25 06:22	3°♄50'32	-17°-9'-13
conjunction	4571 May 15 18:13	26°♄20'48	-16°-38'-7	direct	4579 Feb 14 20:57	2°♄51'19	
minimum elong	4571 May 15 18:16	26°♄20'48	16°38'09				
max. Earth dist.	4571 May 17 17:11	26°♄23'35	49.01242 AU	conjunction	4579 May 23 18:40	4°♄18'34	-16°-27'-15
retrograde	4571 Aug 26 11:14	27°♄53'28		minimum elong	4579 May 23 18:45	4°♄18'35	16°27'15
min. Earth dist.	4571 Nov 16 15:29	26°♄54'33	47.15266 AU	max. Earth dist.	4579 May 25 10:05	4°♄20'52	49.71464 AU
opposition	4571 Nov 18 12:46	26°♄52'24	-17°-19'-39	retrograde	4579 Sep 03 08:06	5°♄49'31	
direct	4572 Feb 07 22:42	25°♄52'40		min. Earth dist.	4579 Nov 24 23:07	4°♄50'51	47.83611 AU
				opposition	4579 Nov 26 11:58	4°♄49'06	-17°-6'-37
conjunction	4572 May 16 00:33	27°♄21'23	-16°-37'-40	direct	4580 Feb 16 03:28	3°♄49'57	
minimum elong	4572 May 16 00:38	27°♄21'23	16°37'42				
max. Earth dist.	4572 May 17 23:35	27°♄24'10	49.11646 AU	conjunction	4580 May 24 00:11	5°♄17'02	-16°-24'-40
retrograde	4572 Aug 26 14:01	28°♄53'51		minimum elong	4580 May 24 00:18	5°♄17'02	16°24'42
min. Earth dist.	4572 Nov 16 23:14	27°♄55'00	47.25423 AU	max. Earth dist.	4580 May 25 15:11	5°♄19'18	49.78585 AU
opposition	4572 Nov 18 19:08	27°♄52'55	-17°-18'-57	retrograde	4580 Sep 03 15:32	6°♄47'47	
direct	4573 Feb 08 08:23	26°♄53'17		min. Earth dist.	4580 Nov 25 04:19	5°♄49'12	47.90537 AU
				opposition	4580 Nov 26 17:22	5°♄47'28	-17°-3'-43
conjunction	4573 May 17 06:54	28°♄21'48	-16°-36'-58	direct	4581 Feb 16 06:46	4°♄48'23	
minimum elong	4573 May 17 06:57	28°♄21'48	16°37'00				
max. Earth dist.	4573 May 19 03:45	28°♄24'27	49.21576 AU	conjunction	4581 May 25 05:41	6°♄15'18	-16°-21'-48
retrograde	4573 Aug 27 21:20	29°♄54'04		minimum elong	4581 May 25 05:47	6°♄15'18	16°21'50
min. Earth dist.	4573 Nov 18 05:49	28°♄55'18	47.35085 AU	max. Earth dist.	4581 May 26 19:12	6°♄17'28	49.85416 AU
opposition	4573 Nov 20 01:18	28°♄53'14	-17°-17'-59	retrograde	4581 Sep 04 21:55	7°♄45'53	
direct	4574 Feb 09 15:09	27°♄53'43		min. Earth dist.	4581 Nov 26 10:58	6°♄47'19	47.97174 AU
				opposition	4581 Nov 27 22:45	6°♄45'38	-17°00'-33
conjunction	4574 May 18 13:12	29°♄22'01	-16°-36'00	direct	4582 Feb 17 10:28	5°♄46'39	
minimum elong	4574 May 18 13:17	29°♄22'01	16°36'01				
max. Earth dist.	4574 May 20 09:13	29°♄24'36	49.30984 AU	conjunction	4582 May 26 11:18	7°♄13'25	-16°-18'-41
	4574 Jun 15 06:41	0°♄		minimum elong	4582 May 26 11:25	7°♄13'25	16°18'43
retrograde	4574 Aug 29 05:29	0°♄54'04		max. Earth dist.	4582 May 28 01:00	7°♄15'36	49.91942 AU
	4574 Nov 15 10:19	30°♄		retrograde	4582 Sep 06 00:06	8°♄43'50	
min. Earth dist.	4574 Nov 19 14:17	29°♄55'17	47.44216 AU	min. Earth dist.	4582 Nov 27 17:15	7°♄45'20	48.03463 AU
opposition	4574 Nov 21 07:31	29°♄53'19	-17°-16'-46	opposition	4582 Nov 29 04:01	7°♄43'42	-16°-57'-6
direct	4575 Feb 10 21:20	28°♄53'53		direct	4583 Feb 18 17:41	6°♄44'47	
	4575 May 04 01:03	0°♄					
conjunction	4575 May 19 19:24	0°♄21'57	-16°-34'-47	conjunction	4583 May 27 16:44	8°♄11'26	-16°-15'-17
minimum elong	4575 May 19 19:27	0°♄21'58	16°34'48	minimum elong	4583 May 27 16:51	8°♄11'26	16°15'18
max. Earth dist.	4575 May 21 14:27	0°♄24'29	49.39887 AU	max. Earth dist.	4583 May 29 04:30	8°♄13'30	49.98109 AU
retrograde	4575 Aug 30 11:42	1°♄53'46		retrograde	4583 Sep 07 05:10	9°♄41'43	
min. Earth dist.	4575 Nov 20 20:23	0°♄55'03	47.52847 AU	min. Earth dist.	4583 Nov 28 22:46	8°♄43'17	48.09368 AU
opposition	4575 Nov 22 13:20	0°♄53'06	-17°-15'-18	opposition	4583 Nov 30 09:09	8°♄41'40	-16°-53'-24
	4576 Jan 19 03:06	30°♄		direct	4584 Feb 19 23:38	7°♄42'50	
direct	4576 Feb 12 01:50	29°♄53'43					
	4576 Mar 06 19:11	0°♄		conjunction	4584 May 27 22:14	9°♄09'22	-16°-11'-39
				minimum elong	4584 May 27 22:21	9°♄09'22	16°11'41
conjunction	4576 May 20 01:17	1°♄21'35	-16°-33'-18	max. Earth dist.	4584 May 29 09:22	9°♄11'23	50.03848 AU
minimum elong	4576 May 20 01:23	1°♄21'36	16°33'20	retrograde	4584 Sep 07 12:03	10°♄39'32	
max. Earth dist.	4576 May 21 18:32	1°♄24'00	49.48323 AU	min. Earth dist.	4584 Nov 29 06:17	9°♄41'05	48.14812 AU
retrograde	4576 Aug 30 17:36	2°♄53'09		opposition	4584 Nov 30 14:25	9°♄39'34	-16°-49'-27
min. Earth dist.	4576 Nov 21 03:35	1°♄54'26	47.61057 AU	direct	4585 Feb 20 05:27	8°♄40'49	
opposition	4576 Nov 22 19:14	1°♄52'34	-17°-13'-33				
direct	4577 Feb 12 05:43	0°♄53'14		conjunction	4585 May 29 03:45	10°♄07'14	-16°-7'-47
				minimum elong	4585 May 29 03:53	10°♄07'14	16°07'48
conjunction	4577 May 21 07:11	2°♄20'54	-16°-31'-33	max. Earth dist.	4585 May 30 13:48	10°♄09'11	50.09109 AU
minimum elong	4577 May 21 07:15	2°♄20'54	16°31'35	retrograde	4585 Sep 08 18:17	11°♄37'15	
max. Earth dist.	4577 May 23 00:37	2°♄23'19	49.56368 AU	min. Earth dist.	4585 Nov 30 11:43	10°♄38'52	48.19732 AU
				opposition	4585 Dec 01 19:31	10°♄37'23	-16°-45'-17

direct	4586 Feb 21 09:26	9°II38'42		minimum elong	4594 Jun 07 02:36	18°II41'39	15°22'38
				max. Earth dist.	4594 Jun 08 02:52	18°II43'02	50.36107 AU
conjunction	4586 May 30 09:14	11°II04'59	-16°-3'-42	retrograde	4594 Sep 17 13:59	20°II10'38	
minimum elong	4586 May 30 09:21	11°II05'00	16°03'44	opposition	4594 Dec 10 14:15	19°II11'13	-15°-56'-59
max. Earth dist.	4586 May 31 16:59	11°II06'49	50.13823 AU	min. Earth dist.	4594 Dec 09 16:19	19°II12'14	48.44207 AU
retrograde	4586 Sep 10 00:54	12°II34'52		direct	4595 Mar 02 06:42	18°II12'52	
min. Earth dist.	4586 Dec 01 18:40	11°II36'28	48.24109 AU				
opposition	4586 Dec 03 00:34	11°II35'04	-16°-40'-53	conjunction	4595 Jun 08 07:31	19°II38'21	-15°-16'-23
direct	4587 Feb 22 12:11	10°II36'26		minimum elong	4595 Jun 08 07:40	19°II38'22	15°16'25
				max. Earth dist.	4595 Jun 09 07:08	19°II39'41	50.37360 AU
conjunction	4587 May 31 14:45	12°II02'36	-15°-59'-24	retrograde	4595 Sep 18 20:11	21°II07'17	
minimum elong	4587 May 31 14:54	12°II02'37	15°59'26	opposition	4595 Dec 11 18:41	20°II07'56	-15°-50'-22
max. Earth dist.	4587 Jun 01 22:16	12°II04'25	50.18004 AU	min. Earth dist.	4595 Dec 10 20:54	20°II08'57	48.45148 AU
retrograde	4587 Sep 11 03:37	13°II32'20		direct	4596 Mar 02 10:21	19°II09'37	
min. Earth dist.	4587 Dec 03 00:56	12°II33'55	48.27952 AU				
opposition	4587 Dec 04 05:33	12°II32'35	-16°-36'-15	conjunction	4596 Jun 08 12:22	20°II35'04	-15°-9'-56
direct	4588 Feb 23 18:53	11°II33'59		minimum elong	4596 Jun 08 12:32	20°II35'04	15°09'57
				max. Earth dist.	4596 Jun 09 10:02	20°II36'17	50.38183 AU
conjunction	4588 May 31 19:51	13°II00'02	-15°-54'-53	retrograde	4596 Sep 19 04:00	22°II03'56	
minimum elong	4588 May 31 19:59	13°II00'03	15°54'54	opposition	4596 Dec 11 23:19	21°II04'38	-15°-43'-32
max. Earth dist.	4588 Jun 02 01:20	13°II01'44	50.21691 AU	min. Earth dist.	4596 Dec 11 03:23	21°II05'33	48.45636 AU
retrograde	4588 Sep 11 07:47	14°II29'39		direct	4597 Mar 03 11:44	20°II06'21	
min. Earth dist.	4588 Dec 03 06:21	13°II31'15	48.31337 AU				
opposition	4588 Dec 04 10:28	13°II29'56	-16°-31'-24	conjunction	4597 Jun 09 17:37	21°II31'46	-15°-3'-15
direct	4589 Feb 24 00:46	12°II31'22		minimum elong	4597 Jun 09 17:46	21°II31'46	15°03'17
				max. Earth dist.	4597 Jun 10 14:58	21°II32'58	50.38520 AU
conjunction	4589 Jun 02 01:07	13°II57'17	-15°-50'-7	retrograde	4597 Sep 20 07:18	23°II00'34	
minimum elong	4589 Jun 02 01:16	13°II57'18	15°50'09	min. Earth dist.	4597 Dec 12 09:09	22°II02'09	48.45597 AU
max. Earth dist.	4589 Jun 03 05:58	13°II58'56	50.24936 AU	opposition	4597 Dec 13 03:44	22°II01'18	-15°-36'-29
retrograde	4589 Sep 12 13:28	15°II26'47		direct	4598 Mar 04 16:30	21°II03'02	
opposition	4589 Dec 05 15:17	14°II27'06	-16°-26'-18				
min. Earth dist.	4589 Dec 04 13:04	14°II28'19	48.34309 AU	conjunction	4598 Jun 10 22:45	22°II28'24	-14°-56'-22
direct	4590 Feb 25 07:30	13°II28'34		minimum elong	4598 Jun 10 22:55	22°II28'25	14°56'24
				max. Earth dist.	4598 Jun 11 17:42	22°II29'28	50.38324 AU
conjunction	4590 Jun 03 06:21	14°II54'23	-15°-45'-7	retrograde	4598 Sep 21 11:14	23°II57'08	
minimum elong	4590 Jun 03 06:28	14°II54'23	15°45'08	opposition	4598 Dec 14 08:13	22°II57'52	-15°-29'-13
max. Earth dist.	4590 Jun 04 10:27	14°II55'59	50.27813 AU	min. Earth dist.	4598 Dec 13 14:27	22°II58'42	48.45016 AU
retrograde	4590 Sep 13 20:57	16°II23'44		direct	4599 Mar 05 21:19	21°II59'36	
opposition	4590 Dec 06 19:55	15°II24'06	-16°-20'-57				
min. Earth dist.	4590 Dec 05 17:39	15°II25'20	48.36922 AU	conjunction	4599 Jun 12 03:47	23°II24'55	-14°-49'-17
direct	4591 Feb 26 10:11	14°II25'36		minimum elong	4599 Jun 12 03:56	23°II24'55	14°49'19
				max. Earth dist.	4599 Jun 12 21:38	23°II25'56	50.37576 AU
conjunction	4591 Jun 04 11:19	15°II51'20	-15°-39'-52	retrograde	4599 Sep 22 14:29	24°II53'35	
minimum elong	4591 Jun 04 11:28	15°II51'20	15°39'54	opposition	4599 Dec 15 12:41	23°II54'19	-15°-21'-45
max. Earth dist.	4591 Jun 05 13:50	15°II52'50	50.30342 AU	min. Earth dist.	4599 Dec 14 21:03	23°II55'03	48.43898 AU
retrograde	4591 Sep 15 03:36	17°II20'34		direct	4600 Mar 07 05:04	22°II56'02	
min. Earth dist.	4591 Dec 06 23:47	16°II22'09	48.39214 AU				
opposition	4591 Dec 08 00:36	16°II20'59	-16°-15'-21	conjunction	4600 Jun 13 08:49	24°II21'17	-14°-42'00
direct	4592 Feb 27 12:10	15°II22'31		minimum elong	4600 Jun 13 09:00	24°II21'18	14°42'01
				max. Earth dist.	4600 Jun 14 01:47	24°II22'15	50.36342 AU
conjunction	4592 Jun 04 16:26	16°II48'10	-15°-34'-22	retrograde	4600 Sep 23 20:34	25°II49'52	
minimum elong	4592 Jun 04 16:35	16°II48'10	15°34'23	opposition	4600 Dec 16 16:57	24°II50'36	-15°-14'-4
max. Earth dist.	4592 Jun 05 19:06	16°II49'41	50.32570 AU	min. Earth dist.	4600 Dec 16 01:32	24°II51'19	48.42315 AU
retrograde	4592 Sep 15 05:07	18°II17'18					
min. Earth dist.	4592 Dec 07 05:00	17°II18'54	48.41196 AU				
opposition	4592 Dec 08 05:11	17°II17'46	-16°-9'-29				
direct	4593 Feb 27 18:36	16°II19'20					
conjunction	4593 Jun 05 21:20	17°II44'55	-15°-28'-37				
minimum elong	4593 Jun 05 21:30	17°II44'56	15°28'39				
max. Earth dist.	4593 Jun 06 22:17	17°II46'21	50.34504 AU				
retrograde	4593 Sep 16 08:19	19°II13'59					
min. Earth dist.	4593 Dec 08 09:55	18°II15'37	48.42876 AU				
opposition	4593 Dec 09 09:45	18°II14'30	-16°-3'-21				
direct	4594 Mar 01 00:43	17°II16'06					
conjunction	4594 Jun 07 02:26	18°II41'38	-15°-22'-37				

direct	4600 Mar 07 05:04	22°II56'02		max. Earth dist.	4607 Jun 21 05:39	0°☾54'06	50.17747 AU
				retrograde	4607 Oct 01 06:45	2°☾21'57	
conjunction	4600 Jun 13 08:49	24°II21'17	-14°-42'00	opposition	4607 Dec 23 22:34	1°☾22'46	-14°-13'-33
minimum elong	4600 Jun 13 09:00	24°II21'18	14°42'01	min. Earth dist.	4607 Dec 23 13:54	1°☾23'10	48.21702 AU
max. Earth dist.	4600 Jun 14 01:47	24°II22'15	50.36342 AU	direct	4608 Mar 14 12:26	0°☾24'25	
retrograde	4600 Sep 23 20:34	25°II49'52					
opposition	4600 Dec 16 16:57	24°II50'36	-15°-14'-4	conjunction	4608 Jun 20 23:58	1°☾49'46	-13°-35'-20
min. Earth dist.	4600 Dec 16 01:32	24°II51'19	48.42315 AU	minimum elong	4608 Jun 21 00:09	1°☾49'47	13°35'22
direct	4601 Mar 08 09:18	23°II52'18		max. Earth dist.	4608 Jun 21 08:29	1°☾50'15	50.13783 AU
				retrograde	4608 Oct 01 11:26	3°☾18'15	
conjunction	4601 Jun 14 13:40	25°II17'30	-14°-34'-29	opposition	4608 Dec 24 02:46	2°☾19'06	-14°-3'-56
minimum elong	4601 Jun 14 13:49	25°II17'31	14°34'30	min. Earth dist.	4608 Dec 23 18:56	2°☾19'28	48.17386 AU
max. Earth dist.	4601 Jun 15 04:40	25°II18'21	50.34662 AU	direct	4609 Mar 15 16:12	1°☾20'46	
retrograde	4601 Sep 25 03:52	26°II46'01					
opposition	4601 Dec 17 21:19	25°II46'44	-15°-6'-10	conjunction	4609 Jun 22 05:07	2°☾46'11	-13°-25'-58
min. Earth dist.	4601 Dec 17 07:39	25°II47'22	48.40326 AU	minimum elong	4609 Jun 22 05:19	2°☾46'11	13°25'59
direct	4602 Mar 09 10:52	24°II48'24		max. Earth dist.	4609 Jun 22 12:36	2°☾46'36	50.09350 AU
				retrograde	4609 Oct 02 15:00	4°☾14'44	
conjunction	4602 Jun 15 18:43	26°II13'35	-14°-26'-45	opposition	4609 Dec 25 07:09	3°☾15'35	-13°-54'-7
minimum elong	4602 Jun 15 18:54	26°II13'35	14°26'46	min. Earth dist.	4609 Dec 25 01:28	3°☾15'51	48.12565 AU
max. Earth dist.	4602 Jun 16 09:43	26°II14'25	50.32602 AU	direct	4610 Mar 16 23:23	2°☾17'14	
retrograde	4602 Sep 26 06:23	27°II42'02					
opposition	4602 Dec 19 01:26	26°II42'45	-14°-58'-1	conjunction	4610 Jun 23 10:23	3°☾42'42	-13°-16'-24
min. Earth dist.	4602 Dec 18 12:28	26°II43'21	48.37972 AU	minimum elong	4610 Jun 23 10:33	3°☾42'43	13°16'25
direct	4603 Mar 10 16:28	25°II44'23		max. Earth dist.	4610 Jun 23 16:40	3°☾43'04	50.04407 AU
				retrograde	4610 Oct 03 21:22	5°☾11'17	
conjunction	4603 Jun 16 23:32	27°II09'33	-14°-18'-47	opposition	4610 Dec 26 11:17	4°☾12'08	-13°-44'-5
minimum elong	4603 Jun 16 23:43	27°II09'33	14°18'47	min. Earth dist.	4610 Dec 26 06:05	4°☾12'23	48.07211 AU
max. Earth dist.	4603 Jun 17 12:47	27°II10'17	50.30218 AU	direct	4611 Mar 18 03:43	3°☾13'46	
retrograde	4603 Sep 27 09:23	28°II37'57					
opposition	4603 Dec 20 05:39	27°II38'40	-14°-49'-37	conjunction	4611 Jun 24 15:31	4°☾39'18	-13°-6'-37
min. Earth dist.	4603 Dec 19 17:04	27°II39'15	48.35319 AU	minimum elong	4611 Jun 24 15:43	4°☾39'18	13°06'39
direct	4604 Mar 10 21:32	26°II40'18		max. Earth dist.	4611 Jun 24 19:27	4°☾39'31	49.98927 AU
				retrograde	4611 Oct 05 06:19	6°☾07'54	
conjunction	4604 Jun 17 04:17	28°II05'27	-14°-10'-34	opposition	4611 Dec 27 15:42	5°☾08'44	-13°-33'-51
minimum elong	4604 Jun 17 04:28	28°II05'28	14°10'36	min. Earth dist.	4611 Dec 27 12:30	5°☾08'53	48.01342 AU
max. Earth dist.	4604 Jun 17 17:08	28°II06'11	50.27533 AU	direct	4612 Mar 18 04:00	4°☾10'19	
retrograde	4604 Sep 27 13:53	29°II33'52					
opposition	4604 Dec 20 10:01	28°II34'35	-14°-40'-58	conjunction	4612 Jun 24 20:38	5°☾35'54	-12°-56'-39
min. Earth dist.	4604 Dec 19 23:03	28°II35'06	48.32371 AU	minimum elong	4612 Jun 24 20:49	5°☾35'54	12°56'40
direct	4605 Mar 12 03:28	27°II36'13		max. Earth dist.	4612 Jun 25 00:18	5°☾36'06	49.92952 AU
				retrograde	4612 Oct 05 10:08	7°☾04'31	
conjunction	4605 Jun 18 09:13	29°II01'23	-14°-2'-7	opposition	4612 Dec 27 20:01	6°☾05'19	-13°-23'-24
minimum elong	4605 Jun 18 09:24	29°II01'24	14°02'08	min. Earth dist.	4612 Dec 27 17:42	6°☾05'26	47.94990 AU
max. Earth dist.	4605 Jun 18 21:28	29°II02'04	50.24580 AU	direct	4613 Mar 19 09:10	5°☾06'51	
	4605 Aug 04 16:18	0°☾					
retrograde	4605 Sep 28 19:40	0°☾29'47		conjunction	4613 Jun 26 01:46	6°☾32'29	-12°-46'-27
	4605 Nov 23 23:12	30°RII		minimum elong	4613 Jun 26 01:58	6°☾32'30	12°46'29
opposition	4605 Dec 21 14:05	29°II30'32	-14°-32'-4	max. Earth dist.	4613 Jun 26 03:28	6°☾32'35	49.86534 AU
min. Earth dist.	4605 Dec 21 02:54	29°II31'04	48.29142 AU	retrograde	4613 Oct 06 12:42	8°☾01'07	
direct	4606 Mar 13 07:05	28°II32'10		opposition	4613 Dec 29 00:11	7°☾01'53	-13°-12'-43
				min. Earth dist.	4613 Dec 28 22:42	7°☾01'57	47.88232 AU
conjunction	4606 Jun 19 14:06	29°II57'23	-13°-53'-25	direct	4614 Mar 20 14:25	6°☾03'20	
minimum elong	4606 Jun 19 14:16	29°II57'23	13°53'27				
max. Earth dist.	4606 Jun 20 00:35	29°II57'58	50.21328 AU	conjunction	4614 Jun 27 07:01	7°☾29'02	-12°-36'-2
	4606 Jun 21 12:37	0°☾		minimum elong	4614 Jun 27 07:12	7°☾29'03	12°36'03
retrograde	4606 Sep 30 03:11	1°☾25'48		max. Earth dist.	4614 Jun 27 07:52	7°☾29'05	49.79716 AU
opposition	4606 Dec 22 18:24	0°☾26'35	-14°-22'-55	retrograde	4614 Oct 07 15:34	8°☾57'43	
min. Earth dist.	4606 Dec 22 08:53	0°☾27'02	48.25606 AU	opposition	4614 Dec 30 04:33	7°☾58'26	-13°-1'-48
	4607 Jan 16 09:49	30°RII		min. Earth dist.	4614 Dec 30 04:48	7°☾58'25	47.81101 AU
direct	4607 Mar 14 08:29	29°II28'14		direct	4615 Mar 21 21:37	6°☾59'49	
	4607 May 09 03:29	0°☾					
conjunction	4607 Jun 20 19:02	0°☾53'30	-13°-44'-29	conjunction	4615 Jun 28 12:06	8°☾25'35	-12°-25'-23
minimum elong	4607 Jun 20 19:13	0°☾53'31	13°44'30	minimum elong	4615 Jun 28 12:18	8°☾25'36	12°25'25
				max. Earth dist.	4615 Jun 28 12:21	8°☾25'36	49.72567 AU

retrograde	4615 Oct 08 20:50	9°54'20		direct	4624 Mar 29 10:20	15°33'04	
opposition	4615 Dec 31 08:46	8°54'59	-12°-50'-39				
min. Earth dist.	4615 Dec 31 08:50	8°54'59	47.73651 AU	conjunction	4624 Jul 06 13:48	17°00'05	-10°-39'-9
direct	4616 Mar 22 02:38	7°56'19		minimum elong	4624 Jul 06 14:00	17°00'06	10°39'11
				max. Earth dist.	4624 Jul 06 02:41	16°59'27	48.92276 AU
conjunction	4616 Jun 28 17:14	9°22'10	-12°-14'-30	retrograde	4624 Oct 16 22:50	18°29'49	
minimum elong	4616 Jun 28 17:25	9°22'10	12°14'31	opposition	4625 Jan 08 01:53	17°30'07	-10°-59'-28
max. Earth dist.	4616 Jun 28 15:44	9°22'05	49.65110 AU	min. Earth dist.	4625 Jan 08 13:11	17°29'35	46.90172 AU
retrograde	4616 Oct 09 04:26	10°50'58		direct	4625 Mar 30 17:53	16°30'53	
opposition	4616 Dec 31 13:10	9°51'35	-12°-39'-15				
min. Earth dist.	4616 Dec 31 14:51	9°51'30	47.65917 AU	conjunction	4625 Jul 07 19:43	17°58'04	-10°-26'-15
direct	4617 Mar 23 04:46	8°52'52		minimum elong	4625 Jul 07 19:53	17°58'05	10°26'16
				max. Earth dist.	4625 Jul 07 07:37	17°57'23	48.81039 AU
conjunction	4617 Jun 29 22:33	10°18'49	-12°-3'-23	retrograde	4625 Oct 18 04:27	19°27'56	
minimum elong	4617 Jun 29 22:45	10°18'49	12°03'25	opposition	4626 Jan 09 06:36	18°28'10	-10°-45'-59
max. Earth dist.	4617 Jun 29 21:13	10°18'44	49.57374 AU	min. Earth dist.	4626 Jan 09 18:03	18°27'37	46.78571 AU
retrograde	4617 Oct 10 09:47	11°47'41		direct	4626 Mar 31 23:31	17°28'49	
opposition	4618 Jan 01 17:33	10°48'16	-12°-27'-35	max. Earth dist.	4626 Jul 08 11:32	18°55'22	48.69381 AU
min. Earth dist.	4618 Jan 01 19:47	10°48'10	47.57885 AU				
direct	4618 Mar 24 08:06	9°49'29		conjunction	4626 Jul 09 01:38	18°56'11	-10°-13'-8
				minimum elong	4626 Jul 09 01:49	18°56'11	10°13'09
conjunction	4618 Jul 01 03:50	11°15'34	-11°-52'-1	retrograde	4626 Oct 19 12:17	20°26'12	
minimum elong	4618 Jul 01 04:02	11°15'35	11°52'02	opposition	4627 Jan 10 11:26	19°26'20	-10°-32'-15
max. Earth dist.	4618 Jul 01 00:37	11°15'23	49.49346 AU	min. Earth dist.	4627 Jan 11 00:50	19°25'42	46.66593 AU
retrograde	4618 Oct 11 15:22	12°44'31		direct	4627 Apr 02 02:25	18°26'53	
opposition	4619 Jan 02 21:52	11°45'05	-12°-15'-41				
min. Earth dist.	4619 Jan 03 00:41	11°44'57	47.49556 AU	conjunction	4627 Jul 10 07:42	19°54'27	-9°-59'-46
direct	4619 Mar 25 11:29	10°46'16		minimum elong	4627 Jul 10 07:53	19°54'27	9°59'47
				max. Earth dist.	4627 Jul 09 17:36	19°53'38	48.57377 AU
conjunction	4619 Jul 02 09:16	12°12'29	-11°-40'-25	retrograde	4627 Oct 20 18:50	21°24'37	
minimum elong	4619 Jul 02 09:27	12°12'30	11°40'27	opposition	4628 Jan 11 16:21	20°24'41	-10°-18'-16
max. Earth dist.	4619 Jul 02 05:20	12°12'16	49.40987 AU	min. Earth dist.	4628 Jan 12 06:08	20°24'01	46.54286 AU
retrograde	4619 Oct 12 18:35	13°41'34		direct	4628 Apr 02 06:15	19°25'07	
opposition	4620 Jan 04 02:27	12°42'06	-12°-3'-32				
min. Earth dist.	4620 Jan 04 07:07	12°41'53	47.40869 AU	conjunction	4628 Jul 10 13:35	20°52'53	-9°-46'-10
direct	4620 Mar 25 17:57	11°43'15		minimum elong	4628 Jul 10 13:46	20°52'54	9°46'12
				max. Earth dist.	4628 Jul 09 21:40	20°51'58	48.45074 AU
conjunction	4620 Jul 02 14:41	13°09'36	-11°-28'-35	retrograde	4628 Oct 21 01:35	22°23'14	
minimum elong	4620 Jul 02 14:53	13°09'37	11°28'36	opposition	4629 Jan 11 21:22	21°23'12	-10°-4'-2
max. Earth dist.	4620 Jul 02 09:59	13°09'20	49.32254 AU	min. Earth dist.	4629 Jan 12 11:48	21°22'31	46.41700 AU
retrograde	4620 Oct 12 23:54	14°38'49		direct	4629 Apr 03 10:13	20°23'32	
opposition	4621 Jan 04 06:58	13°39'20	-11°-51'-10				
min. Earth dist.	4621 Jan 04 11:57	13°39'06	47.31762 AU	conjunction	4629 Jul 11 19:51	21°51'33	-9°-32'-19
direct	4621 Mar 26 23:24	12°40'26		minimum elong	4629 Jul 11 20:02	21°51'33	9°32'20
				max. Earth dist.	4629 Jul 11 03:20	21°50'36	48.32483 AU
conjunction	4621 Jul 03 20:21	14°06'57	-11°-16'-33	retrograde	4629 Oct 22 05:16	23°22'06	
minimum elong	4621 Jul 03 20:32	14°06'58	11°16'34	opposition	4630 Jan 13 02:26	22°21'59	-9°-49'-32
max. Earth dist.	4621 Jul 03 13:14	14°06'33	49.23049 AU	min. Earth dist.	4630 Jan 13 18:24	22°21'13	46.28833 AU
retrograde	4621 Oct 14 08:59	15°36'18		direct	4630 Apr 04 16:54	21°22'13	
opposition	4622 Jan 05 11:36	14°36'47	-11°-38'-34	max. Earth dist.	4630 Jul 12 09:01	22°49'28	48.19632 AU
min. Earth dist.	4622 Jan 05 18:48	14°36'27	47.22163 AU				
direct	4622 Mar 28 01:03	13°37'49		conjunction	4630 Jul 13 02:11	22°50'28	-9°-18'-13
				minimum elong	4630 Jul 13 02:22	22°50'28	9°18'16
conjunction	4622 Jul 05 02:16	15°04'31	-11°-4'-17	retrograde	4630 Oct 23 10:03	24°21'14	
minimum elong	4622 Jul 05 02:28	15°04'31	11°04'19	opposition	4631 Jan 14 07:34	23°21'03	-9°-34'-46
max. Earth dist.	4622 Jul 04 18:38	15°04'05	49.13325 AU	min. Earth dist.	4631 Jan 14 23:30	23°20'18	46.15691 AU
retrograde	4622 Oct 15 14:38	16°33'59		direct	4631 Apr 05 23:57	22°21'12	
opposition	4623 Jan 06 16:19	15°34'25	-11°-25'-45				
min. Earth dist.	4623 Jan 07 00:30	15°34'02	47.12014 AU	conjunction	4631 Jul 14 08:24	23°49'42	-9°-3'-53
direct	4623 Mar 29 05:34	14°35'22		minimum elong	4631 Jul 14 08:34	23°49'42	9°03'54
				max. Earth dist.	4631 Jul 13 13:21	23°48'36	48.06476 AU
conjunction	4623 Jul 06 07:54	16°02'14	-10°-51'-49	retrograde	4631 Oct 24 19:34	25°20'42	
minimum elong	4623 Jul 06 08:05	16°02'14	10°51'51	opposition	4632 Jan 15 12:56	24°20'28	-9°-19'-45
max. Earth dist.	4623 Jul 05 21:57	16°01'40	49.03061 AU	min. Earth dist.	4632 Jan 16 06:42	24°19'36	46.02234 AU
retrograde	4623 Oct 16 19:36	17°31'49		direct	4632 Apr 06 02:46	23°20'30	
opposition	4624 Jan 07 21:05	16°32'12	-11°-12'-43				
min. Earth dist.	4624 Jan 08 06:25	16°31'46	47.01341 AU	conjunction	4632 Jul 14 15:03	24°49'17	-8°-49'-18

minimum elong	4632 Jul 14 15:13	24° 5 49'17	8°49'20	max. Earth dist.	4640 Jul 21 18:39	2° 0 54'16	46.68992 AU
max. Earth dist.	4632 Jul 13 19:56	24° 5 48'10	47.92976 AU				
retrograde	4632 Oct 25 03:24	26° 5 20'32		conjunction	4640 Jul 23 00:19	2° 0 56'01	-6°-44'-11
opposition	4633 Jan 15 18:15	25° 5 20'12	-9°-4'-29	minimum elong	4640 Jul 23 00:28	2° 0 56'02	6°44'12
min. Earth dist.	4633 Jan 16 12:44	25° 5 19'19	45.88390 AU	retrograde	4640 Nov 02 09:04	4° 0 29'20	
direct	4633 Apr 07 06:20	24° 5 20'08		opposition	4641 Jan 23 17:24	3° 0 27'57	-6°-53'-28
				min. Earth dist.	4641 Jan 24 20:27	3° 0 26'37	44.61778 AU
conjunction	4633 Jul 15 21:45	25° 5 49'12	-8°-34'-29	direct	4641 Apr 15 08:08	2° 0 26'35	
minimum elong	4633 Jul 15 21:56	25° 5 49'13	8°34'29	max. Earth dist.	4641 Jul 23 00:38	3° 0 56'14	46.51947 AU
max. Earth dist.	4633 Jul 15 00:23	25° 5 47'58	47.79060 AU				
retrograde	4633 Oct 26 11:26	27° 5 20'41		conjunction	4641 Jul 24 08:04	3° 0 58'06	-6°-27'-26
opposition	4634 Jan 16 23:47	26° 5 20'17	-8°-48'-59	minimum elong	4641 Jul 24 08:12	3° 0 58'07	6°27'28
min. Earth dist.	4634 Jan 17 19:34	26° 5 19'20	45.74102 AU	retrograde	4641 Nov 03 17:31	5° 0 31'45	
direct	4634 Apr 08 10:32	25° 5 20'06		opposition	4642 Jan 24 23:57	4° 0 30'14	-6°-35'-54
max. Earth dist.	4634 Jul 16 06:05	26° 5 48'08	47.64647 AU	min. Earth dist.	4642 Jan 26 04:41	4° 0 28'49	44.44505 AU
				direct	4642 Apr 16 13:48	3° 0 28'42	
conjunction	4634 Jul 17 04:44	26° 5 49'27	-8°-19'-26	max. Earth dist.	4642 Jul 24 08:49	4° 0 58'45	46.34676 AU
minimum elong	4634 Jul 17 04:54	26° 5 49'28	8°19'27				
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opposition	4635 Jan 18 05:28	27° 5 20'40	-8°-33'-14	minimum elong	4642 Jul 25 16:11	5° 0 00'37	6°10'26
min. Earth dist.	4635 Jan 19 03:10	27° 5 19'37	45.59302 AU	retrograde	4642 Nov 05 02:30	6° 0 34'37	
direct	4635 Apr 09 18:57	26° 5 20'20		opposition	4643 Jan 26 06:30	5° 0 32'59	-6°-18'-4
max. Earth dist.	4635 Jul 17 11:56	27° 5 48'34	47.49746 AU	min. Earth dist.	4643 Jan 27 11:20	5° 0 31'33	44.26995 AU
				direct	4643 Apr 17 18:37	4° 0 31'18	
conjunction	4635 Jul 18 11:46	27° 5 49'58	-8°-4'-9	max. Earth dist.	4643 Jul 25 14:55	6° 0 01'39	46.17162 AU
minimum elong	4635 Jul 18 11:57	27° 5 49'59	8°04'10				
retrograde	4635 Oct 28 20:28	29° 5 21'56		conjunction	4643 Jul 27 00:05	6° 0 03'38	-5°-53'-9
opposition	4636 Jan 19 11:11	28° 5 21'17	-8°-17'-15	minimum elong	4643 Jul 27 00:12	6° 0 03'39	5°53'11
min. Earth dist.	4636 Jan 20 09:12	28° 5 20'13	45.44015 AU	retrograde	4643 Nov 06 13:12	7° 0 38'01	
direct	4636 Apr 10 02:26	27° 5 20'48		opposition	4644 Jan 27 13:18	6° 0 36'16	-5°-59'-57
				min. Earth dist.	4644 Jan 28 19:19	6° 0 34'47	44.09235 AU
conjunction	4636 Jul 18 18:46	28° 5 50'43	-7°-48'-39	direct	4644 Apr 17 22:46	5° 0 34'27	
minimum elong	4636 Jul 18 18:55	28° 5 50'43	7°48'40	max. Earth dist.	4644 Jul 25 22:39	7° 0 05'12	45.99347 AU
max. Earth dist.	4636 Jul 17 16:43	28° 5 49'11	47.34354 AU				
	4636 Sep 12 08:59	0° 0		conjunction	4644 Jul 27 08:25	7° 0 07'14	-5°-35'-37
retrograde	4636 Oct 29 04:28	0° 0 22'56		minimum elong	4644 Jul 27 08:33	7° 0 07'14	5°35'38
	4636 Dec 15 13:28	30° 0 38'5		retrograde	4644 Nov 06 20:30	8° 0 42'01	
opposition	4637 Jan 19 17:09	29° 5 22'09	-8°-1'-1	opposition	4645 Jan 27 20:22	7° 0 40'08	-5°-41'-33
min. Earth dist.	4637 Jan 20 17:22	29° 5 20'58	45.28269 AU	min. Earth dist.	4645 Jan 29 03:51	7° 0 38'35	43.91133 AU
direct	4637 Apr 11 07:33	28° 5 21'29		direct	4645 Apr 19 07:19	6° 0 38'10	
max. Earth dist.	4637 Jul 18 23:48	29° 5 50'08	47.18529 AU	max. Earth dist.	4645 Jul 27 06:04	8° 0 09'18	45.81165 AU
conjunction	4637 Jul 20 02:08	29° 5 51'41	-7°-32'-54	conjunction	4645 Jul 28 17:07	8° 0 11'25	-5°-17'-50
minimum elong	4637 Jul 20 02:18	29° 5 51'41	7°32'56	minimum elong	4645 Jul 28 17:14	8° 0 11'25	5°17'52
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retrograde	4637 Oct 30 12:08	1° 0 24'09		opposition	4646 Jan 29 03:25	8° 0 44'36	-5°-22'-54
opposition	4638 Jan 20 22:56	0° 0 23'13	-7°-44'-31	min. Earth dist.	4646 Jan 30 11:24	8° 0 43'01	43.72633 AU
min. Earth dist.	4638 Jan 21 23:42	0° 0 22'00	45.12112 AU	direct	4646 Apr 20 15:52	7° 0 42'28	
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direct	4638 Apr 12 13:05	29° 5 22'22					
	4638 Jun 11 12:49	0° 0		conjunction	4646 Jul 30 02:02	9° 0 16'11	-4°-59'-49
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minimum elong	4638 Jul 21 09:34	0° 0 52'52	7°16'56	min. Earth dist.	4647 Jan 31 21:15	9° 0 47'56	43.53675 AU
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opposition	4639 Jan 22 05:00	1° 0 24'30	-7°-27'-47	max. Earth dist.	4647 Jul 29 21:21	10° 0 19'11	45.43440 AU
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max. Earth dist.	4639 Jul 21 11:50	1° 0 52'35	46.85789 AU	minimum elong	4647 Jul 31 11:09	10° 0 21'29	4°41'34
				retrograde	4647 Nov 10 21:49	11° 0 57'32	
conjunction	4639 Jul 22 16:46	1° 0 54'18	-7°00'-41	opposition	4648 Jan 31 18:35	10° 0 55'13	-4°-44'-48
minimum elong	4639 Jul 22 16:55	1° 0 54'18	7°00'42	min. Earth dist.	4648 Feb 02 05:18	10° 0 53'28	43.34249 AU
retrograde	4639 Nov 02 03:49	3° 0 27'18		direct	4648 Apr 22 06:14	9° 0 52'41	
opposition	4640 Jan 23 11:14	2° 0 26'04	-7°-10'-46	max. Earth dist.	4648 Jul 30 04:06	11° 0 24'51	45.23892 AU
min. Earth dist.	4640 Jan 24 14:21	2° 0 24'44	44.78818 AU				
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






















































































































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retrograde	4648 Nov 11 10:47	13°♏03'46		minimum elong	4656 Aug 10 06:20	20°♏32'19	1°45'36
opposition	4649 Feb 01 02:18	12°♏01'15	-4°-25'-21	retrograde	4656 Nov 20 21:04	22°♏12'44	
min. Earth dist.	4649 Feb 02 14:37	11°♏59'26	43.14400 AU	opposition	4657 Feb 10 00:17	21°♏08'32	-1°-39'-44
direct	4649 Apr 23 10:21	10°♏58'29		min. Earth dist.	4657 Feb 11 20:20	21°♏06'14	41.45337 AU
max. Earth dist.	4649 Jul 31 13:01	12°♏31'06	45.03920 AU	direct	4657 May 02 07:59	20°♏03'47	
				max. Earth dist.	4657 Aug 09 17:07	21°♏40'17	43.34327 AU
conjunction	4649 Aug 02 05:52	12°♏33'36	-4°-4'-14				
minimum elong	4649 Aug 02 05:58	12°♏33'36	4°04'16	conjunction	4657 Aug 11 17:58	21°♏43'24	-1°-24'-44
retrograde	4649 Nov 12 20:57	14°♏10'29		minimum elong	4657 Aug 11 18:01	21°♏43'24	1°24'44
opposition	4650 Feb 02 10:19	13°♏07'46	-4°-5'-37	retrograde	4657 Nov 22 06:49	23°♏24'25	
min. Earth dist.	4650 Feb 03 23:59	13°♏05'52	42.94150 AU	opposition	4658 Feb 11 10:11	22°♏20'00	-1°-17'-47
direct	4650 Apr 24 18:02	12°♏04'46		min. Earth dist.	4658 Feb 13 06:29	22°♏17'41	41.23067 AU
max. Earth dist.	4650 Aug 01 21:20	13°♏37'46	44.83589 AU	direct	4658 May 03 18:56	21°♏15'00	
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conjunction	4650 Aug 03 15:28	13°♏40'22	-3°-45'-12				
minimum elong	4650 Aug 03 15:33	13°♏40'22	3°45'14	conjunction	4658 Aug 13 05:50	22°♏55'17	-1°-3'-38
	4650 Oct 05 09:36	15°♏		minimum elong	4658 Aug 13 05:51	22°♏55'17	1°03'40
retrograde	4650 Nov 14 04:57	15°♏17'40		retrograde	4658 Nov 23 20:08	24°♏36'55	
	4650 Dec 24 05:19	15°♏		opposition	4659 Feb 12 20:30	23°♏32'16	0°-55'-33
opposition	4651 Feb 03 18:21	14°♏14'45	-3°-45'-38	min. Earth dist.	4659 Feb 14 18:46	23°♏29'50	41.00412 AU
min. Earth dist.	4651 Feb 05 08:22	14°♏12'49	42.73579 AU	direct	4659 May 05 02:34	22°♏27'00	
direct	4651 Apr 26 03:51	13°♏11'29		max. Earth dist.	4659 Aug 12 14:23	24°♏04'37	42.89056 AU
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				conjunction	4659 Aug 14 18:12	24°♏07'58	0°-42'-18
conjunction	4651 Aug 05 01:17	14°♏47'35	-3°-25'-55	minimum elong	4659 Aug 14 18:13	24°♏07'58	0°42'19
minimum elong	4651 Aug 05 01:22	14°♏47'36	3°25'56	retrograde	4659 Nov 25 08:46	25°♏50'13	
	4651 Aug 13 10:07	15°♏		opposition	4660 Feb 14 07:06	24°♏45'19	0°-33'-3
retrograde	4651 Nov 15 12:27	16°♏25'22		min. Earth dist.	4660 Feb 16 06:15	24°♏42'50	40.77354 AU
opposition	4652 Feb 05 02:47	15°♏22'13	-3°-25'-21	direct	4660 May 05 11:55	23°♏39'45	
min. Earth dist.	4652 Feb 06 18:34	15°♏20'11	42.52733 AU	max. Earth dist.	4660 Aug 13 00:54	25°♏17'55	42.65834 AU
	4652 Feb 23 15:00	15°♏					
direct	4652 Apr 26 13:54	14°♏18'42		conjunction	4660 Aug 15 06:42	25°♏21'25	0°-20'-43
	4652 Jun 27 02:14	15°♏		minimum elong	4660 Aug 15 06:42	25°♏21'25	0°20'44
max. Earth dist.	4652 Aug 03 15:40	15°♏52'36	44.42048 AU	retrograde	4660 Nov 25 23:30	27°♏04'17	
				opposition	4661 Feb 14 17:57	25°♏59'08	0°-10'-17
conjunction	4652 Aug 05 11:21	15°♏55'19	-3°-6'-22	min. Earth dist.	4661 Feb 16 18:07	25°♏56'35	40.53934 AU
minimum elong	4652 Aug 05 11:26	15°♏55'19	3°06'24	direct	4661 May 06 21:40	24°♏53'15	
retrograde	4652 Nov 15 21:26	17°♏33'34		asc. node	4661 Jul 29 00:25	26°♏06'30	
opposition	4653 Feb 05 11:21	16°♏30'12	-3°-4'-48	max. Earth dist.	4661 Aug 14 12:30	26°♏32'01	42.42239 AU
min. Earth dist.	4653 Feb 07 03:00	16°♏28'10	42.31656 AU				
direct	4653 Apr 27 22:37	15°♏26'26		conjunction	4661 Aug 16 19:41	26°♏35'37	0°01'10
max. Earth dist.	4653 Aug 04 23:57	17°♏00'44	44.20935 AU	minimum elong	4661 Aug 16 19:42	26°♏35'37	0°01'10
				behind sun begin	4661 Aug 16 13:11	26°♏35'14	
conjunction	4653 Aug 06 21:40	17°♏03'35	-2°-46'-34	behind sun end	4661 Aug 17 02:13	26°♏36'01	
minimum elong	4653 Aug 06 21:44	17°♏03'35	2°46'35	retrograde	4661 Nov 27 11:37	28°♏19'09	
retrograde	4653 Nov 17 09:47	18°♏42'20		opposition	4662 Feb 16 05:07	27°♏13'42	0°12'45
opposition	4654 Feb 06 20:09	17°♏38'45	-2°-43'-57	min. Earth dist.	4662 Feb 18 07:02	27°♏11'03	40.30181 AU
min. Earth dist.	4654 Feb 08 13:11	17°♏36'39	42.10390 AU	direct	4662 May 08 10:41	26°♏07'30	
direct	4654 Apr 29 04:39	16°♏34'45		max. Earth dist.	4662 Aug 16 01:15	27°♏46'57	42.18354 AU
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conjunction	4654 Aug 08 08:21	18°♏12'28	-2°-26'-30	minimum elong	4662 Aug 18 08:55	27°♏50'37	0°23'13
minimum elong	4654 Aug 08 08:25	18°♏12'28	2°26'32	retrograde	4662 Nov 28 23:39	29°♏34'47	
retrograde	4654 Nov 18 21:33	19°♏51'45		opposition	4663 Feb 17 16:32	28°♏29'04	0°36'03
opposition	4655 Feb 08 05:19	18°♏47'57	-2°-22'-50	min. Earth dist.	4663 Feb 19 18:23	28°♏26'23	40.06174 AU
min. Earth dist.	4655 Feb 09 23:00	18°♏45'48	41.88929 AU	direct	4663 May 09 23:41	27°♏22'32	
direct	4655 Apr 30 13:01	17°♏43'42		max. Earth dist.	4663 Aug 17 12:39	29°♏02'34	41.94224 AU
max. Earth dist.	4655 Aug 07 20:02	19°♏19'03	43.78128 AU				
				conjunction	4663 Aug 19 22:14	29°♏06'23	0°45'32
conjunction	4655 Aug 09 19:01	19°♏22'01	-2°-6'-10	minimum elong	4663 Aug 19 22:13	29°♏06'23	0°45'32
minimum elong	4655 Aug 09 19:04	19°♏22'01	2°06'11		4663 Sep 24 05:32	0°♏	
retrograde	4655 Nov 20 10:30	21°♏01'51		retrograde	4663 Nov 30 12:52	0°♏51'16	
opposition	4656 Feb 09 14:39	19°♏57'51	-2°-1'-25		4664 Feb 07 16:17	30°♏	
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	4664 Aug 06 00:28	0° \mathring{m}		max. Earth dist.	4672 Aug 29 00:55	11° \mathring{m} 08'55	39.71021 AU
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conjunction	4664 Aug 20 12:11	0° \mathring{m} 23'00	1°08'05	conjunction	4672 Aug 31 18:25	11° \mathring{m} 13'33	4°16'11
minimum elong	4664 Aug 20 12:09	0° \mathring{m} 23'00	1°08'05	minimum elong	4672 Aug 31 18:17	11° \mathring{m} 13'33	4°16'11
retrograde	4664 Dec 01 02:13	2° \mathring{m} 08'36		retrograde	4672 Dec 12 16:24	13° \mathring{m} 05'54	
opposition	4665 Feb 19 16:26	1° \mathring{m} 02'17	1°23'27	opposition	4673 Mar 02 08:28	11° \mathring{m} 57'09	4°42'32
min. Earth dist.	4665 Feb 21 20:08	0° \mathring{m} 59'29	39.57628 AU	min. Earth dist.	4673 Mar 04 18:34	11° \mathring{m} 53'51	37.58665 AU
	4665 Apr 21 21:21	30° \mathring{R} 0		direct	4673 May 22 05:09	10° \mathring{m} 47'06	
direct	4665 May 11 21:14	29° \mathring{Q} 55'05		max. Earth dist.	4673 Aug 30 17:42	12° \mathring{m} 35'17	39.45253 AU
	4665 May 31 17:37	0° \mathring{m}		conjunction	4673 Sep 02 12:31	12° \mathring{m} 40'03	4°40'32
max. Earth dist.	4665 Aug 19 15:17	1° \mathring{m} 36'33	41.45499 AU	minimum elong	4673 Sep 02 12:22	12° \mathring{m} 40'02	4°40'31
				retrograde	4673 Dec 14 10:22	14° \mathring{m} 33'19	
conjunction	4665 Aug 22 02:22	1° \mathring{m} 40'30	1°30'52	opposition	4674 Mar 04 00:39	13° \mathring{m} 24'11	5°08'21
minimum elong	4665 Aug 22 02:20	1° \mathring{m} 40'30	1°30'52	min. Earth dist.	4674 Mar 06 12:27	13° \mathring{m} 20'47	37.32933 AU
retrograde	4665 Dec 02 19:53	3° \mathring{m} 26'52		direct	4674 May 23 21:27	12° \mathring{m} 13'43	
opposition	4666 Feb 21 04:57	2° \mathring{m} 20'15	1°47'32	max. Earth dist.	4674 Sep 01 11:58	14° \mathring{m} 02'53	39.19331 AU
min. Earth dist.	4666 Feb 23 09:20	2° \mathring{m} 17'24	39.33204 AU				
direct	4666 May 13 06:28	1° \mathring{m} 12'42		conjunction	4674 Sep 04 06:53	14° \mathring{m} 07'41	5°05'01
max. Earth dist.	4666 Aug 21 05:37	2° \mathring{m} 54'59	41.20985 AU	minimum elong	4674 Sep 04 06:43	14° \mathring{m} 07'41	5°05'02
				retrograde	4674 Dec 16 04:17	16° \mathring{m} 01'53	
conjunction	4666 Aug 23 16:59	2° \mathring{m} 58'59	1°53'53	opposition	4675 Mar 05 17:08	14° \mathring{m} 52'23	5°34'21
minimum elong	4666 Aug 23 16:55	2° \mathring{m} 58'59	1°53'53	min. Earth dist.	4675 Mar 08 04:44	14° \mathring{m} 48'57	37.07085 AU
retrograde	4666 Dec 04 11:18	4° \mathring{m} 46'08		direct	4675 May 25 15:56	13° \mathring{m} 41'29	
opposition	4667 Feb 22 17:56	3° \mathring{m} 39'13	2°11'51	max. Earth dist.	4675 Sep 03 05:01	15° \mathring{m} 31'31	38.93306 AU
min. Earth dist.	4667 Feb 24 23:15	3° \mathring{m} 36'18	39.08705 AU				
direct	4667 May 14 18:14	2° \mathring{m} 31'21		conjunction	4675 Sep 06 01:47	15° \mathring{m} 36'30	5°29'39
max. Earth dist.	4667 Aug 22 20:06	4° \mathring{m} 14'26	40.96417 AU	minimum elong	4675 Sep 06 01:36	15° \mathring{m} 36'30	5°29'38
				retrograde	4675 Dec 17 23:06	17° \mathring{m} 31'41	
conjunction	4667 Aug 25 07:57	4° \mathring{m} 18'30	2°17'06	opposition	4676 Mar 06 10:10	16° \mathring{m} 21'47	6°00'28
minimum elong	4667 Aug 25 07:53	4° \mathring{m} 18'30	2°17'05	min. Earth dist.	4676 Mar 08 23:15	16° \mathring{m} 18'15	36.81192 AU
retrograde	4667 Dec 06 02:49	6° \mathring{m} 06'27		direct	4676 May 26 07:23	15° \mathring{m} 10'26	
opposition	4668 Feb 24 07:07	4° \mathring{m} 59'17	2°36'25	max. Earth dist.	4676 Sep 04 01:02	17° \mathring{m} 01'33	38.67254 AU
min. Earth dist.	4668 Feb 26 12:20	4° \mathring{m} 56'21	38.84150 AU				
direct	4668 May 15 09:07	3° \mathring{m} 51'04		conjunction	4676 Sep 06 21:19	17° \mathring{m} 06'32	5°54'23
max. Earth dist.	4668 Aug 23 09:57	5° \mathring{m} 34'56	40.71743 AU	minimum elong	4676 Sep 06 21:08	17° \mathring{m} 06'32	5°54'23
				retrograde	4676 Dec 18 17:20	19° \mathring{m} 02'43	
conjunction	4668 Aug 25 23:26	5° \mathring{m} 39'10	2°40'32	opposition	4677 Mar 08 03:46	17° \mathring{m} 52'26	6°26'43
minimum elong	4668 Aug 25 23:21	5° \mathring{m} 39'09	2°40'32	min. Earth dist.	4677 Mar 10 16:42	17° \mathring{m} 48'53	36.55304 AU
retrograde	4668 Dec 06 17:59	7° \mathring{m} 27'57		direct	4677 May 28 00:41	16° \mathring{m} 40'39	
opposition	4669 Feb 24 20:57	6° \mathring{m} 20'29	3°01'13	max. Earth dist.	4677 Sep 05 19:41	18° \mathring{m} 32'44	38.41234 AU
min. Earth dist.	4669 Feb 27 03:57	6° \mathring{m} 17'26	38.59474 AU				
direct	4669 May 16 23:03	5° \mathring{m} 11'58		conjunction	4677 Sep 08 17:16	18° \mathring{m} 37'52	6°19'12
max. Earth dist.	4669 Aug 25 02:07	6° \mathring{m} 56'44	40.46912 AU	minimum elong	4677 Sep 08 17:04	18° \mathring{m} 37'51	6°19'11
				retrograde	4677 Dec 20 15:02	20° \mathring{m} 35'05	
conjunction	4669 Aug 27 15:32	7° \mathring{m} 00'59	3°04'09	opposition	4678 Mar 09 21:51	19° \mathring{m} 24'25	6°53'04
minimum elong	4669 Aug 27 15:26	7° \mathring{m} 00'59	3°04'09	min. Earth dist.	4678 Mar 12 11:17	19° \mathring{m} 20'49	36.29498 AU
retrograde	4669 Dec 08 08:45	8° \mathring{m} 50'39		direct	4678 May 29 16:10	18° \mathring{m} 12'12	
opposition	4670 Feb 26 11:02	7° \mathring{m} 42'54	3°26'14	max. Earth dist.	4678 Sep 07 16:22	20° \mathring{m} 05'26	38.15295 AU
min. Earth dist.	4670 Feb 28 18:06	7° \mathring{m} 39'49	38.34616 AU				
direct	4670 May 18 13:05	6° \mathring{m} 34'02		conjunction	4678 Sep 10 13:56	20° \mathring{m} 10'36	6°44'04
max. Earth dist.	4670 Aug 26 16:24	8° \mathring{m} 19'34	40.21863 AU	minimum elong	4678 Sep 10 13:43	20° \mathring{m} 10'35	6°44'05
				retrograde	4678 Dec 22 12:41	22° \mathring{m} 08'54	
conjunction	4670 Aug 29 07:59	8° \mathring{m} 24'00	3°27'59	opposition	4679 Mar 11 16:43	20° \mathring{m} 57'51	7°19'29
minimum elong	4670 Aug 29 07:53	8° \mathring{m} 24'00	3°27'59	min. Earth dist.	4679 Mar 14 06:46	20° \mathring{m} 54'12	36.03804 AU
retrograde	4670 Dec 10 02:27	10° \mathring{m} 14'33		direct	4679 May 31 09:51	19° \mathring{m} 45'13	
opposition	4671 Feb 28 01:47	9° \mathring{m} 06'30	3°51'28	max. Earth dist.	4679 Sep 09 13:08	21° \mathring{m} 39'36	37.89490 AU
min. Earth dist.	4671 Mar 02 10:26	9° \mathring{m} 03'19	38.09539 AU				
direct	4671 May 20 00:58	7° \mathring{m} 57'15		conjunction	4679 Sep 12 10:56	21° \mathring{m} 44'50	7°08'59
max. Earth dist.	4671 Aug 28 08:59	9° \mathring{m} 43'43	39.96561 AU	minimum elong	4679 Sep 12 10:43	21° \mathring{m} 44'49	7°08'58
				retrograde	4679 Dec 24 12:17	23° \mathring{m} 44'16	
conjunction	4671 Aug 31 00:57	9° \mathring{m} 48'12	3°51'59	opposition	4680 Mar 12 12:00	22° \mathring{m} 32'52	7°45'57
minimum elong	4671 Aug 31 00:49	9° \mathring{m} 48'11	3°51'59	min. Earth dist.	4680 Mar 15 01:34	22° \mathring{m} 29'13	35.78246 AU
retrograde	4671 Dec 11 20:08	11° \mathring{m} 39'39		direct	4680 Jun 01 04:45	21° \mathring{m} 19'49	
opposition	4672 Feb 29 17:01	10° \mathring{m} 31'15	4°16'54	max. Earth dist.	4680 Sep 10 10:01	23° \mathring{m} 15'21	37.63780 AU
min. Earth dist.	4672 Mar 03 02:35	10° \mathring{m} 28'00	37.84209 AU				
direct	4672 May 20 14:51	9° \mathring{m} 21'37		conjunction	4680 Sep 13 08:50	23° \mathring{m} 20'43	7°33'54

minimum elong	4680 Sep 13 08:36	23° 11 20'41	7°33'55	conjunction	4688 Sep 27 16:50	7° 11 10'35	10°50'35
retrograde	4680 Dec 25 10:42	25° 11 21'18		minimum elong	4688 Sep 27 16:29	7° 11 10'34	10°50'35
opposition	4681 Mar 14 07:57	24° 11 09'34	8°12'26	retrograde	4689 Jan 09 01:35	9° 11 21'09	
min. Earth dist.	4681 Mar 16 22:59	24° 11 05'48	35.52782 AU	opposition	4689 Mar 28 00:45	8° 11 06'09	11°41'36
direct	4681 Jun 03 00:02	22° 11 56'07		min. Earth dist.	4689 Mar 30 18:20	8° 11 02'01	33.50368 AU
max. Earth dist.	4681 Sep 12 09:07	24° 11 52'55	37.38138 AU	direct	4689 Jun 16 11:07	6° 11 48'58	
				max. Earth dist.	4689 Sep 26 18:08	8° 11 56'00	35.34052 AU
conjunction	4681 Sep 15 07:29	24° 11 58'18	7°58'49				
minimum elong	4681 Sep 15 07:14	24° 11 58'17	7°58'49	conjunction	4689 Sep 29 20:58	9° 11 02'11	11°14'15
retrograde	4681 Dec 27 09:33	27° 11 00'05		minimum elong	4689 Sep 29 20:37	9° 11 02'09	11°14'15
opposition	4682 Mar 16 04:35	25° 11 48'00	8°38'54	retrograde	4690 Jan 11 05:31	11° 11 14'04	
min. Earth dist.	4682 Mar 18 19:17	25° 11 44'14	35.27365 AU	opposition	4690 Mar 30 03:11	9° 11 58'37	12°06'46
direct	4682 Jun 04 21:08	24° 11 34'09		min. Earth dist.	4690 Apr 01 21:21	9° 11 54'25	33.25808 AU
max. Earth dist.	4682 Sep 14 06:25	26° 11 32'06	37.12502 AU	direct	4690 Jun 18 11:24	8° 11 40'55	
				max. Earth dist.	4690 Sep 29 00:22	10° 11 49'28	35.09381 AU
conjunction	4682 Sep 17 06:34	26° 11 37'40	8°23'42				
minimum elong	4682 Sep 17 06:17	26° 11 37'39	8°23'43	conjunction	4690 Oct 02 01:48	10° 11 55'36	11°37'33
retrograde	4682 Dec 29 09:48	28° 11 40'41		minimum elong	4690 Oct 02 01:26	10° 11 55'34	11°37'33
opposition	4683 Mar 18 02:00	27° 11 28'13	9°05'22	retrograde	4691 Jan 13 08:52	13° 11 08'49	
min. Earth dist.	4683 Mar 20 18:04	27° 11 24'21	35.01954 AU	opposition	4691 Apr 01 06:26	11° 11 52'56	12°31'31
direct	4683 Jun 06 15:20	26° 11 13'57		min. Earth dist.	4691 Apr 03 23:53	11° 11 48'45	33.01631 AU
max. Earth dist.	4683 Sep 16 06:46	28° 11 13'12	36.86844 AU	direct	4691 Jun 20 13:36	10° 11 34'46	
				max. Earth dist.	4691 Oct 01 05:29	12° 11 44'42	34.85131 AU
conjunction	4683 Sep 19 06:38	28° 11 18'48	8°48'32				
minimum elong	4683 Sep 19 06:21	28° 11 18'47	8°48'31	conjunction	4691 Oct 04 07:24	12° 11 50'56	12°00'24
	4683 Nov 21 01:45	0° 11		minimum elong	4691 Oct 04 07:03	12° 11 50'54	12°00'24
retrograde	4683 Dec 31 08:31	0° 11 23'03		retrograde	4692 Jan 15 16:16	15° 11 05'31	
	4684 Feb 10 09:28	30° 11 R		opposition	4692 Apr 02 10:17	13° 11 49'14	12°55'47
opposition	4684 Mar 19 00:01	29° 11 10'13	9°31'46	min. Earth dist.	4692 Apr 05 03:19	13° 11 45'03	32.77899 AU
min. Earth dist.	4684 Mar 21 16:19	29° 11 06'18	34.76520 AU	direct	4692 Jun 21 14:23	12° 11 30'35	
direct	4684 Jun 07 12:28	27° 11 55'30		max. Earth dist.	4692 Oct 02 13:01	14° 11 42'04	34.61307 AU
max. Earth dist.	4684 Sep 17 05:55	29° 11 55'55	36.61172 AU				
	4684 Sep 19 09:47	0° 11		conjunction	4692 Oct 05 14:02	14° 11 48'17	12°22'46
				minimum elong	4692 Oct 05 13:40	14° 11 48'15	12°22'46
conjunction	4684 Sep 20 07:16	0° 11 01'42	9°13'16	retrograde	4693 Jan 16 22:17	17° 11 04'16	
minimum elong	4684 Sep 20 06:58	0° 11 01'40	9°13'16	opposition	4693 Apr 04 15:12	15° 11 47'35	13°19'31
retrograde	4685 Jan 01 11:16	2° 11 07'11		min. Earth dist.	4693 Apr 07 08:25	15° 11 43'22	32.54584 AU
opposition	4685 Mar 20 22:44	0° 11 53'56	9°58'05	direct	4693 Jun 23 17:17	14° 11 42'30	
min. Earth dist.	4685 Mar 23 15:32	0° 11 49'58	34.51091 AU	max. Earth dist.	4693 Oct 04 20:40	16° 11 41'29	34.37906 AU
	4685 Apr 30 20:58	30° 11 R					
direct	4685 Jun 09 08:49	29° 11 38'45		conjunction	4693 Oct 07 21:18	16° 11 47'44	12°44'34
	4685 Jul 18 10:50	0° 11		minimum elong	4693 Oct 07 20:57	16° 11 47'42	12°44'34
max. Earth dist.	4685 Sep 19 07:06	1° 11 40'29	36.35488 AU	retrograde	4694 Jan 19 07:58	19° 11 05'08	
				opposition	4694 Apr 06 20:48	17° 11 48'04	13°42'39
conjunction	4685 Sep 22 08:44	1° 11 46'20	9°37'53	min. Earth dist.	4694 Apr 09 13:04	17° 11 43'53	32.31679 AU
minimum elong	4685 Sep 22 08:26	1° 11 46'18	9°37'53	direct	4694 Jun 25 23:01	16° 11 28'32	
retrograde	4686 Jan 03 12:43	3° 11 53'04		max. Earth dist.	4694 Oct 07 04:52	18° 11 43'02	34.14880 AU
opposition	4686 Mar 22 22:16	2° 11 39'24	10°24'17				
min. Earth dist.	4686 Mar 25 16:07	2° 11 35'21	34.25686 AU	conjunction	4694 Oct 10 05:33	18° 11 49'20	13°05'47
direct	4686 Jun 11 06:33	1° 11 23'44		minimum elong	4694 Oct 10 05:10	18° 11 49'18	13°05'47
max. Earth dist.	4686 Sep 21 08:50	3° 11 26'46	36.09875 AU	retrograde	4695 Jan 21 17:14	21° 11 08'10	
				opposition	4695 Apr 09 03:29	19° 11 50'41	14°05'09
conjunction	4686 Sep 24 10:43	3° 11 32'41	10°02'21	min. Earth dist.	4695 Apr 11 20:33	19° 11 46'26	32.09144 AU
minimum elong	4686 Sep 24 10:24	3° 11 32'39	10°02'21	direct	4695 Jun 28 04:11	18° 11 30'43	
retrograde	4687 Jan 05 17:02	5° 11 40'41		max. Earth dist.	4695 Oct 09 14:51	20° 11 46'47	33.92228 AU
opposition	4687 Mar 24 22:19	4° 11 26'35	10°50'18				
min. Earth dist.	4687 Mar 27 15:40	4° 11 22'32	34.00391 AU	conjunction	4695 Oct 12 14:32	20° 11 53'04	13°26'20
direct	4687 Jun 13 07:25	3° 11 10'25		minimum elong	4695 Oct 12 14:11	20° 11 53'02	13°26'20
max. Earth dist.	4687 Sep 23 10:32	5° 11 14'43	35.84376 AU	retrograde	4696 Jan 24 03:55	23° 11 13'18	
				opposition	4696 Apr 10 10:56	21° 11 55'27	14°26'56
conjunction	4687 Sep 26 13:20	5° 11 20'46	10°26'36	min. Earth dist.	4696 Apr 13 02:45	21° 11 51'15	31.86962 AU
minimum elong	4687 Sep 26 13:01	5° 11 20'45	10°26'36	direct	4696 Jun 29 12:09	20° 11 35'02	
retrograde	4688 Jan 07 21:28	7° 11 30'03		max. Earth dist.	4696 Oct 11 00:04	22° 11 52'32	33.69927 AU
opposition	4688 Mar 25 23:17	6° 11 15'29	11°16'06				
min. Earth dist.	4688 Mar 28 17:46	6° 11 11'20	33.75258 AU	conjunction	4696 Oct 14 00:28	22° 11 58'56	13°46'11
direct	4688 Jun 14 08:24	4° 11 58'49		minimum elong	4696 Oct 14 00:05	22° 11 58'54	13°46'11
max. Earth dist.	4688 Sep 24 14:57	7° 11 04'33	35.59078 AU	retrograde	4697 Jan 25 15:31	25° 11 20'34	

opposition	4697 Apr 12 19:16	24° 2 02'19	14°47'56	opposition	4705 May 01 20:16	12° 1 08'14	16°57'39
min. Earth dist.	4697 Apr 15 11:44	23° 2 58'02	31.65150 AU	min. Earth dist.	4705 May 04 03:30	12° 1 04'26	30.11100 AU
direct	4697 Jul 01 19:04	22° 2 41'27		direct	4705 Jul 20 13:11	10° 1 44'08	
max. Earth dist.	4697 Oct 13 12:30	25° 2 00'33	33.48019 AU	max. Earth dist.	4705 Nov 02 14:23	13° 1 15'01	31.94849 AU
conjunction	4697 Oct 16 11:17	25° 2 06'53	14°05'15	conjunction	4705 Nov 05 03:11	13° 1 20'50	15°59'52
minimum elong	4697 Oct 16 10:56	25° 2 06'51	14°05'15	minimum elong	4705 Nov 05 02:58	13° 1 20'48	15°59'52
retrograde	4698 Jan 28 02:39	27° 2 29'53			4705 Dec 21 20:56	15° 1	
opposition	4698 Apr 15 04:33	26° 2 11'14	15°08'06	retrograde	4706 Feb 16 23:04	15° 1 54'02	
min. Earth dist.	4698 Apr 17 19:57	26° 2 07'00	31.43737 AU		4706 Apr 17 16:52	15° 1 5	
direct	4698 Jul 04 04:17	24° 2 49'56		opposition	4706 May 04 12:10	14° 1 32'34	17°07'40
max. Earth dist.	4698 Oct 15 23:21	27° 2 10'26	33.26550 AU	min. Earth dist.	4706 May 06 18:39	14° 1 28'47	29.95373 AU
				direct	4706 Jul 23 04:00	13° 1 08'11	
conjunction	4698 Oct 18 22:34	27° 2 16'51	14°23'27		4706 Oct 18 14:23	15° 1	
minimum elong	4698 Oct 18 22:11	27° 2 16'49	14°23'28	max. Earth dist.	4706 Nov 05 10:24	15° 1 40'32	31.79395 AU
retrograde	4699 Jan 30 14:37	29° 2 41'14					
opposition	4699 Apr 17 14:37	28° 2 22'11	15°27'19	conjunction	4706 Nov 07 20:16	15° 1 46'06	16°08'12
min. Earth dist.	4699 Apr 20 05:49	28° 2 17'56	31.22796 AU	minimum elong	4706 Nov 07 20:03	15° 1 46'05	16°08'13
direct	4699 Jul 06 12:27	27° 2 00'25		retrograde	4707 Feb 19 16:52	18° 1 20'25	
max. Earth dist.	4699 Oct 18 13:30	29° 2 22'31	33.05581 AU	opposition	4707 May 07 04:47	16° 1 58'42	17°16'04
				min. Earth dist.	4707 May 09 09:05	16° 1 55'04	29.80475 AU
conjunction	4699 Oct 21 10:54	29° 2 28'50	14°40'44	direct	4707 Jul 25 21:29	15° 1 34'04	
minimum elong	4699 Oct 21 10:34	29° 2 28'48	14°40'44	max. Earth dist.	4707 Nov 08 05:01	18° 1 07'37	31.64784 AU
	4699 Nov 04 19:27	0° 1					
retrograde	4700 Feb 02 01:21	1° 1 54'33		conjunction	4707 Nov 10 14:04	18° 1 13'09	16°15'00
opposition	4700 Apr 20 01:26	0° 1 35'06	15°45'31	minimum elong	4707 Nov 10 13:54	18° 1 13'08	16°15'00
min. Earth dist.	4700 Apr 22 16:00	0° 1 30'52	31.02376 AU	retrograde	4708 Feb 22 11:46	20° 1 48'29	
	4700 May 12 10:33	30° 1 5		opposition	4708 May 08 22:02	19° 1 26'33	17°22'46
direct	4700 Jul 08 22:20	29° 2 12'53		min. Earth dist.	4708 May 11 01:13	19° 1 22'58	29.66400 AU
	4700 Sep 02 13:11	0° 1		direct	4708 Jul 27 13:14	18° 1 01'40	
max. Earth dist.	4700 Oct 21 02:40	1° 1 36'24	32.85200 AU	max. Earth dist.	4708 Nov 10 02:34	20° 1 36'32	31.51010 AU
conjunction	4700 Oct 23 23:51	1° 1 42'45	14°56'59	conjunction	4708 Nov 12 08:39	20° 1 41'48	16°20'11
minimum elong	4700 Oct 23 23:30	1° 1 42'43	14°57'00	minimum elong	4708 Nov 12 08:30	20° 1 41'48	16°20'12
retrograde	4701 Feb 04 15:55	4° 1 09'47		retrograde	4709 Feb 24 06:31	23° 1 18'04	
opposition	4701 Apr 22 13:07	2° 1 49'56	16°02'35	opposition	4709 May 11 16:12	21° 1 55'56	17°27'44
min. Earth dist.	4701 Apr 25 02:17	2° 1 45'47	30.82577 AU	min. Earth dist.	4709 May 13 17:45	21° 1 52'27	29.53123 AU
direct	4701 Jul 11 08:07	1° 1 27'16		direct	4709 Jul 30 07:29	20° 1 30'49	
max. Earth dist.	4701 Oct 23 18:12	3° 1 52'20	32.65475 AU	max. Earth dist.	4709 Nov 12 22:20	23° 1 06'42	31.38081 AU
conjunction	4701 Oct 26 13:31	3° 1 58'34	15°12'08	conjunction	4709 Nov 15 03:28	23° 1 11'55	16°23'44
minimum elong	4701 Oct 26 13:13	3° 1 58'33	15°12'09	minimum elong	4709 Nov 15 03:22	23° 1 11'55	16°23'44
retrograde	4702 Feb 07 04:17	6° 1 26'54		retrograde	4710 Feb 27 02:31	25° 1 49'03	
opposition	4702 Apr 25 01:46	5° 1 06'40	16°18'26	opposition	4710 May 14 10:55	24° 1 26'41	17°30'54
min. Earth dist.	4702 Apr 27 14:26	5° 1 02'32	30.63470 AU	min. Earth dist.	4710 May 16 10:22	24° 1 23'21	29.40681 AU
direct	4702 Jul 13 18:53	3° 1 43'36		direct	4710 Aug 02 01:09	23° 1 01'21	
max. Earth dist.	4702 Oct 26 10:01	6° 1 10'08	32.46525 AU	max. Earth dist.	4710 Nov 15 20:49	25° 1 38'21	31.26018 AU
conjunction	4702 Oct 29 03:48	6° 1 16'17	15°26'05	conjunction	4710 Nov 17 23:00	25° 1 43'19	16°25'35
minimum elong	4702 Oct 29 03:29	6° 1 16'15	15°26'06	minimum elong	4710 Nov 17 22:55	25° 1 43'18	16°25'36
retrograde	4703 Feb 09 20:03	8° 1 45'53		retrograde	4711 Mar 01 20:08	28° 1 21'12	
opposition	4703 Apr 27 15:04	7° 1 25'17	16°32'57	opposition	4711 May 17 06:13	26° 1 58'38	17°32'13
min. Earth dist.	4703 Apr 30 01:24	7° 1 21'17	30.45162 AU	min. Earth dist.	4711 May 19 04:24	26° 1 55'23	29.29087 AU
direct	4703 Jul 16 09:04	6° 1 01'50		direct	4711 Aug 04 20:01	25° 1 33'06	
max. Earth dist.	4703 Oct 29 02:38	8° 1 29'51	32.28408 AU	max. Earth dist.	4711 Nov 18 18:03	28° 1 10'58	31.14872 AU
conjunction	4703 Oct 31 18:52	8° 1 35'54	15°38'44	conjunction	4711 Nov 20 18:44	28° 1 15'48	16°25'40
minimum elong	4703 Oct 31 18:37	8° 1 35'52	15°38'44	minimum elong	4711 Nov 20 18:42	28° 1 15'48	16°25'40
retrograde	4704 Feb 12 11:12	11° 1 06'44			4712 Jan 07 08:11	0° 2 7	
opposition	4704 Apr 29 05:22	9° 1 45'48	16°46'03	retrograde	4712 Mar 03 16:42	0° 2 7'54'21	
min. Earth dist.	4704 May 01 15:10	9° 1 41'50	30.27696 AU		4712 May 01 23:00	30° 1 5	
direct	4704 Jul 17 21:51	8° 1 22'00		opposition	4712 May 19 01:56	29° 1 31'36	17°31'38
max. Earth dist.	4704 Oct 30 20:47	10° 1 51'32	32.11186 AU	min. Earth dist.	4712 May 20 21:21	29° 1 28'32	29.18396 AU
				direct	4712 Aug 06 15:44	28° 1 05'51	
conjunction	4704 Nov 02 10:41	10° 1 57'24	15°50'01		4712 Nov 01 16:38	0° 2 7	
minimum elong	4704 Nov 02 10:25	10° 1 57'23	15°50'01	max. Earth dist.	4712 Nov 20 17:10	0° 2 7'44'39	31.04670 AU
retrograde	4705 Feb 14 04:33	13° 1 29'27					

conjunction	4712 Nov 22 14:55	0°♂49'13	16°23'58	opposition	4721 Jun 12 01:40	22°♂51'18	15°55'30
minimum elong	4712 Nov 22 14:55	0°♂49'13	16°23'59	min. Earth dist.	4721 Jun 12 21:06	22°♂49'57	28.71359 AU
retrograde	4713 Mar 06 11:15	3°♂28'20		direct	4721 Aug 30 18:17	21°♂25'34	
opposition	4713 May 21 22:15	2°♂05'24	17°29'05				
min. Earth dist.	4713 May 23 16:29	2°♂02'25	29.08656 AU	conjunction	4721 Dec 16 07:44	24°♂10'01	14°44'22
direct	4713 Aug 09 10:24	0°♂39'29		minimum elong	4721 Dec 16 08:02	24°♂10'03	14°44'22
max. Earth dist.	4713 Nov 23 15:57	3°♂19'03	30.95505 AU	max. Earth dist.	4721 Dec 15 13:32	24°♂08'11	30.64348 AU
				retrograde	4722 Mar 30 03:28	26°♂50'12	
conjunction	4713 Nov 25 11:11	3°♂23'22	16°20'25	opposition	4722 Jun 14 23:34	25°♂27'11	15°34'59
minimum elong	4713 Nov 25 11:14	3°♂23'22	16°20'26	min. Earth dist.	4722 Jun 15 16:53	25°♂25'58	28.71702 AU
retrograde	4714 Mar 09 07:22	6°♂02'58		direct	4722 Sep 02 16:59	24°♂01'37	
opposition	4714 May 24 18:51	4°♂39'52	17°24'32	max. Earth dist.	4722 Dec 18 11:22	26°♂43'58	30.65527 AU
min. Earth dist.	4714 May 26 09:34	4°♂37'08	28.99954 AU				
direct	4714 Aug 12 08:33	3°♂13'49		conjunction	4722 Dec 19 03:40	26°♂45'36	14°24'20
max. Earth dist.	4714 Nov 26 15:12	5°♂54'05	30.87435 AU	minimum elong	4722 Dec 19 04:00	26°♂45'38	14°24'21
				retrograde	4723 Apr 02 00:10	29°♂25'24	
conjunction	4714 Nov 28 07:33	5°♂58'07	16°15'00	opposition	4723 Jun 17 21:08	28°♂02'30	15°12'43
minimum elong	4714 Nov 28 07:38	5°♂58'08	16°15'01	min. Earth dist.	4723 Jun 18 10:57	28°♂01'32	28.73070 AU
retrograde	4715 Mar 12 02:43	8°♂38'07		direct	4723 Sep 05 15:22	26°♂37'05	
opposition	4715 May 27 15:54	7°♂14'53	17°17'56				
min. Earth dist.	4715 May 29 04:57	7°♂12'15	28.92361 AU	conjunction	4723 Dec 21 23:32	29°♂20'32	14°02'42
direct	4715 Aug 15 04:49	5°♂48'44		minimum elong	4723 Dec 21 23:52	29°♂20'34	14°02'42
max. Earth dist.	4715 Nov 29 15:09	8°♂29'39	30.80551 AU	max. Earth dist.	4723 Dec 21 10:57	29°♂19'16	30.67730 AU
					4724 Jan 07 12:38	0°♂	
conjunction	4715 Dec 01 04:10	8°♂33'22	16°07'41	retrograde	4724 Apr 03 18:30	1°♂59'50	
minimum elong	4715 Dec 01 04:17	8°♂33'23	16°07'41	opposition	4724 Jun 19 18:31	0°♂37'03	14°48'46
retrograde	4716 Mar 13 23:24	11°♂13'39		min. Earth dist.	4724 Jun 20 06:36	0°♂36'12	28.75443 AU
opposition	4716 May 29 13:00	9°♂50'21	17°09'17		4724 Jul 12 15:14	30°♂♂	
min. Earth dist.	4716 May 30 22:17	9°♂47'59	28.85934 AU	direct	4724 Sep 07 12:48	29°♂11'47	
direct	4716 Aug 17 03:13	8°♂24'09			4724 Oct 31 18:03	0°♂	
max. Earth dist.	4716 Dec 01 14:26	11°♂05'34	30.74882 AU				
				conjunction	4724 Dec 23 18:50	1°♂54'34	13°39'32
conjunction	4716 Dec 03 00:52	11°♂09'02	15°58'27	minimum elong	4724 Dec 23 19:13	1°♂54'36	13°39'33
minimum elong	4716 Dec 03 01:01	11°♂09'03	15°58'28	max. Earth dist.	4724 Dec 23 08:32	1°♂53'32	30.70974 AU
retrograde	4717 Mar 16 20:13	13°♂49'32		retrograde	4725 Apr 06 12:46	4°♂33'17	
opposition	4717 Jun 01 10:35	12°♂26'12	16°58'32	opposition	4725 Jun 22 15:34	3°♂10'37	14°23'12
min. Earth dist.	4717 Jun 02 17:44	12°♂24'00	28.80716 AU	min. Earth dist.	4725 Jun 22 23:46	3°♂10'03	28.78846 AU
direct	4717 Aug 19 23:57	11°♂00'02		direct	4725 Sep 10 11:36	1°♂45'32	
conjunction	4717 Dec 05 21:31	13°♂45'02	15°47'18	conjunction	4725 Dec 26 13:35	4°♂27'31	13°14'55
minimum elong	4717 Dec 05 21:42	13°♂45'03	15°47'18	minimum elong	4725 Dec 26 13:57	4°♂27'34	13°14'56
max. Earth dist.	4717 Dec 04 15:08	13°♂41'58	30.70458 AU	max. Earth dist.	4725 Dec 26 06:47	4°♂26'51	30.75260 AU
retrograde	4718 Mar 19 17:12	16°♂25'40		retrograde	4726 Apr 09 05:04	7°♂05'35	
opposition	4718 Jun 04 08:16	15°♂02'21	16°45'44	opposition	4726 Jun 25 12:23	5°♂43'01	13°56'05
min. Earth dist.	4718 Jun 05 12:00	15°♂00'23	28.76684 AU	min. Earth dist.	4726 Jun 25 18:36	5°♂42'35	28.83309 AU
direct	4718 Aug 22 23:40	13°♂36'15		direct	4726 Sep 13 08:24	4°♂18'07	
conjunction	4718 Dec 08 18:09	16°♂21'17	15°34'16	conjunction	4726 Dec 29 07:49	6°♂59'15	12°48'55
minimum elong	4718 Dec 08 18:22	16°♂21'18	15°34'17	minimum elong	4726 Dec 29 08:13	6°♂59'17	12°48'55
max. Earth dist.	4718 Dec 07 14:02	16°♂18'27	30.67234 AU	max. Earth dist.	4726 Dec 29 03:59	6°♂58'52	30.80647 AU
retrograde	4719 Mar 22 14:15	19°♂01'58		retrograde	4727 Apr 11 22:33	9°♂36'33	
opposition	4719 Jun 07 05:55	17°♂38'42	16°30'56	opposition	4727 Jun 28 08:25	8°♂14'07	13°27'30
min. Earth dist.	4719 Jun 08 07:09	17°♂36'55	28.73820 AU	min. Earth dist.	4727 Jun 28 10:45	8°♂13'58	28.88875 AU
direct	4719 Aug 25 20:33	16°♂12'41		direct	4727 Sep 16 05:42	6°♂49'25	
conjunction	4719 Dec 11 14:52	18°♂57'39	15°19'24	conjunction	4728 Jan 01 01:30	9°♂29'36	12°21'35
minimum elong	4719 Dec 11 15:07	18°♂57'41	15°19'24	minimum elong	4728 Jan 01 01:52	9°♂29'39	12°21'36
max. Earth dist.	4719 Dec 10 14:49	18°♂55'14	30.65176 AU	max. Earth dist.	4728 Jan 01 00:46	9°♂29'32	30.87159 AU
retrograde	4720 Mar 24 11:02	21°♂38'16		retrograde	4728 Apr 13 14:20	12°♂06'06	
opposition	4720 Jun 09 03:50	20°♂15'05	16°14'10	opposition	4728 Jun 30 04:16	10°♂43'50	12°57'33
min. Earth dist.	4720 Jun 10 02:21	20°♂13'30	28.72050 AU	min. Earth dist.	4728 Jun 30 04:06	10°♂43'51	28.95601 AU
direct	4720 Aug 27 19:58	18°♂49'12		direct	4728 Sep 18 01:43	9°♂19'22	
conjunction	4720 Dec 13 11:18	21°♂33'58	15°02'45	conjunction	4729 Jan 02 18:32	11°♂58'33	11°53'02
minimum elong	4720 Dec 13 11:35	21°♂33'59	15°02'46	minimum elong	4729 Jan 02 18:56	11°♂58'36	11°53'03
max. Earth dist.	4720 Dec 12 13:07	21°♂31'44	30.64223 AU	max. Earth dist.	4729 Jan 02 21:35	11°♂58'51	30.94852 AU
retrograde	4721 Mar 27 08:54	24°♂14'25		retrograde	4729 Apr 16 06:01	14°♂34'12	

opposition	4729 Jul 02 23:33	13°  12'07	12°26'19	min. Earth dist.	4737 Jul 21 11:35	2°  05'43	30.03256 AU
min. Earth dist.	4729 Jul 02 19:41	13°  12'23	29.03493 AU	opposition	4737 Jul 22 12:43	2°  04'04	7°44'14
direct	4729 Sep 20 23:20	11°  47'57		direct	4737 Oct 10 21:42	0°  42'49	
conjunction	4730 Jan 05 10:56	14°  26'05	11°23'21	conjunction	4738 Jan 23 23:02	3°  11'09	6°57'37
minimum elong	4730 Jan 05 11:19	14°  26'07	11°23'22	minimum elong	4738 Jan 23 23:19	3°  11'11	6°57'38
max. Earth dist.	4730 Jan 05 16:37	14°  26'38	31.03716 AU	max. Earth dist.	4738 Jan 25 02:16	3°  13'42	32.09782 AU
retrograde	4730 Apr 18 22:25	17°  00'49		retrograde	4738 May 07 03:45	5°  37'26	
opposition	4730 Jul 05 18:16	15°  38'59	11°53'55	min. Earth dist.	4738 Jul 23 22:12	4°  19'46	30.19434 AU
min. Earth dist.	4730 Jul 05 11:13	15°  39'28	29.12565 AU	opposition	4738 Jul 25 02:12	4°  17'56	7°06'37
direct	4730 Sep 23 17:34	14°  15'07		direct	4738 Oct 13 12:37	2°  57'03	
conjunction	4731 Jan 08 02:47	16°  52'10	10°52'37	conjunction	4739 Jan 26 09:14	5°  24'02	6°22'23
minimum elong	4731 Jan 08 03:11	16°  52'12	10°52'38	minimum elong	4739 Jan 26 09:29	5°  24'03	6°22'23
max. Earth dist.	4731 Jan 08 12:28	16°  53'06	31.13728 AU	max. Earth dist.	4739 Jan 27 14:34	5°  26'44	32.26596 AU
retrograde	4731 Apr 21 13:12	19°  25'58		retrograde	4739 May 09 13:24	7°  49'08	
opposition	4731 Jul 08 12:26	18°  04'24	11°20'28	min. Earth dist.	4739 Jul 26 08:50	6°  31'52	30.36380 AU
min. Earth dist.	4731 Jul 08 02:36	18°  05'04	29.22732 AU	opposition	4739 Jul 27 15:05	6°  29'54	6°28'49
direct	4731 Sep 26 13:52	16°  40'53		direct	4739 Oct 16 00:31	5°  09'23	
conjunction	4732 Jan 10 17:53	19°  16'47	10°20'59	conjunction	4740 Jan 28 18:43	7°  34'59	5°46'58
minimum elong	4732 Jan 10 18:15	19°  16'49	10°20'59	minimum elong	4740 Jan 28 18:56	7°  35'00	5°46'58
max. Earth dist.	4732 Jan 11 05:30	19°  17'55	31.24800 AU	max. Earth dist.	4740 Jan 30 03:07	7°  37'58	32.44171 AU
retrograde	4732 Apr 23 05:45	21°  49'37		retrograde	4740 May 10 21:16	9°  58'54	
opposition	4732 Jul 10 05:56	20°  28'20	10°46'04	min. Earth dist.	4740 Jul 27 18:32	8°  42'05	30.54109 AU
min. Earth dist.	4732 Jul 09 16:42	20°  29'13	29.33949 AU	opposition	4740 Jul 29 03:10	8°  39'58	5°50'53
direct	4732 Sep 28 08:42	19°  05'11		direct	4740 Oct 17 15:17	7°  19'49	
conjunction	4733 Jan 12 08:33	21°  39'56	9°48'31	conjunction	4741 Jan 30 03:19	9°  44'03	5°11'27
minimum elong	4733 Jan 12 08:56	21°  39'58	9°48'31	minimum elong	4741 Jan 30 03:32	9°  44'05	5°11'27
max. Earth dist.	4733 Jan 13 00:06	21°  41'26	31.36869 AU	max. Earth dist.	4741 Jan 31 13:21	9°  47'09	32.62530 AU
retrograde	4733 Apr 25 18:44	24°  11'45		retrograde	4741 May 13 07:26	12°  06'48	
opposition	4733 Jul 12 23:05	22°  50'45	10°10'52	min. Earth dist.	4741 Jul 30 02:45	10°  50'28	30.72677 AU
min. Earth dist.	4733 Jul 12 07:56	22°  51'46	29.46129 AU	opposition	4741 Jul 31 14:34	10°  48'10	5°12'54
direct	4733 Oct 01 03:21	21°  28'00		direct	4741 Oct 20 02:30	9°  28'24	
conjunction	4734 Jan 14 22:16	24°  01'31	9°15'21	conjunction	4742 Feb 01 11:16	11°  51'18	4°35'55
minimum elong	4734 Jan 14 22:36	24°  01'33	9°15'21	minimum elong	4742 Feb 01 11:27	11°  51'19	4°35'56
max. Earth dist.	4734 Jan 15 15:30	24°  03'10	31.49859 AU	max. Earth dist.	4742 Feb 03 00:46	11°  54'41	32.81698 AU
retrograde	4734 Apr 28 09:14	26°  32'18		retrograde	4742 May 15 13:49	14°  12'53	
opposition	4734 Jul 15 15:26	25°  11'36	9°34'59	min. Earth dist.	4742 Aug 01 11:48	12°  56'58	30.92047 AU
min. Earth dist.	4734 Jul 14 20:40	25°  12'52	29.59212 AU	opposition	4742 Aug 03 01:15	12°  54'34	4°34'58
direct	4734 Oct 03 21:04	23°  49'14		direct	4742 Oct 22 14:04	11°  35'14	
conjunction	4735 Jan 17 11:36	26°  21'31	8°41'35	conjunction	4743 Feb 03 18:28	13°  56'48	4°00'26
minimum elong	4735 Jan 17 11:57	26°  21'33	8°41'35	minimum elong	4743 Feb 03 18:38	13°  56'49	4°00'27
max. Earth dist.	4735 Jan 18 08:18	26°  23'29	31.63694 AU	max. Earth dist.	4743 Feb 05 09:15	14°  00'16	33.01634 AU
retrograde	4735 Apr 30 21:02	28°  51'12			4743 Mar 06 05:49	15° 	
min. Earth dist.	4735 Jul 17 10:59	27°  32'10	29.73125 AU	retrograde	4743 May 17 22:04	16°  17'13	
opposition	4735 Jul 18 07:09	27°  30'49	8°58'30	min. Earth dist.	4743 Aug 03 18:06	15°  01'51	31.12186 AU
direct	4735 Oct 06 14:08	26°  08'50			4743 Aug 04 23:15	15°  R	
conjunction	4736 Jan 20 00:10	28°  39'50	8°07'18	opposition	4743 Aug 05 10:56	14°  59'15	3°57'08
minimum elong	4736 Jan 20 00:29	28°  39'52	8°07'19	direct	4743 Oct 25 01:31	13°  40'21	
max. Earth dist.	4736 Jan 20 22:27	28°  41'56	31.78323 AU		4744 Jan 07 16:08	15° 	
	4736 Feb 26 08:19	0° 		conjunction	4744 Feb 06 01:05	16°  00'37	3°25'04
retrograde	4736 May 02 09:22	1°  08'25		minimum elong	4744 Feb 06 01:13	16°  00'37	3°25'05
	4736 Jul 12 13:23	30°  R 		max. Earth dist.	4744 Feb 07 19:03	16°  04'20	33.22275 AU
opposition	4736 Jul 19 22:11	29°  48'20	8°21'33	retrograde	4744 May 19 04:13	18°  19'53	
min. Earth dist.	4736 Jul 18 22:35	29°  49'54	29.87814 AU	min. Earth dist.	4744 Aug 05 02:14	17°  04'56	31.33020 AU
direct	4736 Oct 08 06:58	28°  26'43		opposition	4744 Aug 06 20:16	17°  02'17	3°19'30
	4736 Dec 26 19:07	0° 		direct	4744 Oct 26 12:46	15°  43'49	
conjunction	4737 Jan 21 11:56	0°  56'24	7°32'38	conjunction	4745 Feb 07 06:50	18°  02'46	2°49'53
minimum elong	4737 Jan 21 12:15	0°  56'26	7°32'38	minimum elong	4745 Feb 07 06:57	18°  02'47	2°49'54
max. Earth dist.	4737 Jan 22 12:57	0°  58'45	31.93684 AU	max. Earth dist.	4745 Feb 09 02:10	18°  06'36	33.43555 AU
retrograde	4737 May 04 18:35	3°  23'51		retrograde	4745 May 21 09:52	20°  20'55	

min. Earth dist.	4745 Aug 07 07:48	19° 06 '30	31.54467 AU	conjunction	4753 Feb 22 06:58	3° 21 '15	-1°-39'-1
opposition	4745 Aug 09 04:46	19° 03 '40	2°42'06	minimum elong	4753 Feb 22 06:54	3° 21 '14	1°39'02
direct	4745 Oct 28 23:05	17° 45 '39		max. Earth dist.	4753 Feb 24 14:30	3° 25 '50	35.28145 AU
				retrograde	4753 Jun 05 04:08	5° 30 '36	
conjunction	4746 Feb 09 12:05	20° 03 '19	2°14'57	min. Earth dist.	4753 Aug 22 16:37	4° 19 '17	33.40346 AU
minimum elong	4746 Feb 09 12:10	20° 03 '19	2°14'57	opposition	4753 Aug 25 00:59	4° 15 '54	-2°-1'-43
max. Earth dist.	4746 Feb 11 09:34	20° 07 '18	33.65373 AU	direct	4753 Nov 14 01:18	3° 00 '58	
retrograde	4746 May 23 13:02	22° 20 '21					
min. Earth dist.	4746 Aug 09 14:32	21° 06 '20	31.76454 AU	conjunction	4754 Feb 24 07:10	5° 08 '42	-2°-10'-30
opposition	4746 Aug 11 12:37	21° 03 '27	2°05'02	minimum elong	4754 Feb 24 07:05	5° 08 '42	2°10'31
direct	4746 Oct 31 07:01	19° 45 '52		max. Earth dist.	4754 Feb 26 15:59	5° 13 '23	35.52683 AU
				retrograde	4754 Jun 07 02:30	7° 17 '02	
conjunction	4747 Feb 11 16:46	22° 02 '15	1°40'18	min. Earth dist.	4754 Aug 24 17:06	6° 06 '08	33.65127 AU
minimum elong	4747 Feb 11 16:50	22° 02 '15	1°40'18	opposition	4754 Aug 27 03:20	6° 02 '39	-2°-34'-45
max. Earth dist.	4747 Feb 13 15:55	22° 06 '21	33.87668 AU	direct	4754 Nov 16 05:41	4° 48 '07	
retrograde	4747 May 25 15:39	24° 18 '09					
min. Earth dist.	4747 Aug 11 19:50	23° 04 '36	31.98875 AU	conjunction	4755 Feb 26 06:42	6° 54 '43	-2°-41'-26
opposition	4747 Aug 13 19:45	23° 01 '37	1°28'20	minimum elong	4755 Feb 26 06:36	6° 54 '43	2°41'27
direct	4747 Nov 02 15:38	21° 44 '27		max. Earth dist.	4755 Feb 28 16:34	6° 59 '27	35.77566 AU
				retrograde	4755 Jun 09 02:03	9° 02 '04	
conjunction	4748 Feb 13 20:40	23° 59 '33	1°06'00	min. Earth dist.	4755 Aug 26 17:34	7° 51 '35	33.90273 AU
minimum elong	4748 Feb 13 20:43	23° 59 '34	1°06'00	opposition	4755 Aug 29 05:19	7° 48 '01	-3°-7'-8
max. Earth dist.	4748 Feb 15 20:51	24° 03 '42	34.10333 AU	direct	4755 Nov 18 06:47	6° 33 '53	
retrograde	4748 May 26 20:00	26° 14 '22					
min. Earth dist.	4748 Aug 13 00:39	25° 01 '14	32.21679 AU	conjunction	4756 Feb 28 05:43	8° 39 '24	-3°-11'-47
opposition	4748 Aug 15 02:20	24° 58 '10	0°52'04	minimum elong	4756 Feb 28 05:37	8° 39 '23	3°11'48
direct	4748 Nov 03 21:01	23° 41 '23		max. Earth dist.	4756 Mar 01 17:41	8° 44 '15	36.02772 AU
				retrograde	4756 Jun 10 00:26	10° 45 '48	
conjunction	4749 Feb 15 00:10	25° 55 '14	0°32'06	min. Earth dist.	4756 Aug 27 18:07	9° 35 '40	34.15710 AU
minimum elong	4749 Feb 15 00:12	25° 55 '14	0°32'06	opposition	4756 Aug 30 06:42	9° 32 '05	-3°-38'-52
max. Earth dist.	4749 Feb 17 02:29	25° 59 '32	34.33331 AU	direct	4756 Nov 19 08:22	8° 18 '21	
retrograde	4749 May 28 22:09	28° 08 '56					
min. Earth dist.	4749 Aug 15 05:45	26° 56 '09	32.44793 AU	conjunction	4757 Mar 01 04:09	10° 22 '48	-3°-41'-32
opposition	4749 Aug 17 08:16	26° 53 '03	0°16'14	minimum elong	4757 Mar 01 04:01	10° 22 '48	3°41'32
direct	4749 Nov 06 04:35	25° 36 '40		max. Earth dist.	4757 Mar 03 16:19	10° 27 '39	36.28234 AU
desc. node	4750 Feb 01 13:10	27° 17 '50		retrograde	4757 Jun 12 01:07	12° 28 '16	
				min. Earth dist.	4757 Aug 29 16:52	11° 18 '35	34.41400 AU
conjunction	4750 Feb 17 02:50	27° 49 '15	0°-1'-27	opposition	4757 Sep 01 07:30	11° 14 '55	-4°-9'-56
minimum elong	4750 Feb 17 02:48	27° 49 '15	0°01'27	direct	4757 Nov 21 06:46	10° 01 '35	
behind sun begin	4750 Feb 16 20:26	27° 48 '44					
behind sun end	4750 Feb 17 09:10	27° 49 '46		conjunction	4758 Mar 03 02:11	12° 05 '00	-4°-10'-40
max. Earth dist.	4750 Feb 19 05:21	27° 53 '32	34.56606 AU	minimum elong	4758 Mar 03 02:03	12° 04 '59	4°10'41
	4750 May 19 23:25	0° 01 '50		max. Earth dist.	4758 Mar 05 16:23	12° 09 '58	36.53887 AU
retrograde	4750 May 31 02:34	30° 01 '50		retrograde	4758 Jun 13 23:06	14° 09 '34	
	4750 Jun 11 06:38	30° 01 '50		min. Earth dist.	4758 Aug 31 17:23	13° 00 '11	34.67247 AU
min. Earth dist.	4750 Aug 17 08:42	28° 49 '29	32.68203 AU	opposition	4758 Sep 03 07:49	12° 56 '33	-4°-40'-20
opposition	4750 Aug 19 13:25	28° 46 '16	0°-19'-4	direct	4758 Nov 23 07:36	11° 43 '37	
direct	4750 Nov 08 09:20	27° 30 '14					
				conjunction	4759 Mar 04 23:43	13° 46 '01	-4°-39'-11
conjunction	4751 Feb 19 04:58	29° 41 '35	0°-34'-27	minimum elong	4759 Mar 04 23:34	13° 46 '00	4°39'11
minimum elong	4751 Feb 19 04:57	29° 41 '35	0°34'27	max. Earth dist.	4759 Mar 07 13:48	13° 50 '56	36.79650 AU
max. Earth dist.	4751 Feb 21 09:48	29° 46 '01	34.80145 AU	retrograde	4759 Jun 15 21:27	15° 49 '40	
	4751 Feb 28 08:25	0° 01 '50		min. Earth dist.	4759 Sep 02 15:15	14° 40 '43	34.93177 AU
retrograde	4751 Jun 02 03:42	1° 53 '04		opposition	4759 Sep 05 07:24	14° 36 '59	-5°-10'-2
min. Earth dist.	4751 Aug 19 12:52	0° 41 '00	32.91902 AU	direct	4759 Nov 25 08:36	13° 24 '27	
opposition	4751 Aug 21 17:51	0° 37 '47	0°-53'-51				
	4751 Sep 17 20:08	30° 01 '50		conjunction	4760 Mar 05 20:52	15° 25 '52	-5°-7'-4
direct	4751 Nov 10 14:41	29° 22 '07		minimum elong	4760 Mar 05 20:42	15° 25 '51	5°07'06
	4752 Jan 01 01:44	0° 01 '50		max. Earth dist.	4760 Mar 08 12:11	15° 30 '50	37.05443 AU
				retrograde	4760 Jun 16 18:40	17° 28 '38	
conjunction	4752 Feb 21 06:19	1° 32 '14	-1°-6'-59	min. Earth dist.	4760 Sep 03 14:44	16° 19 '58	35.19129 AU
minimum elong	4752 Feb 21 06:17	1° 32 '14	1°07'00	opposition	4760 Sep 06 06:48	16° 16 '16	-5°-39'-4
max. Earth dist.	4752 Feb 23 11:44	1° 36 '41	35.03983 AU	direct	4760 Nov 26 08:41	15° 04 '06	
retrograde	4752 Jun 03 04:39	3° 42 '38					
min. Earth dist.	4752 Aug 20 14:07	2° 31 '00	33.15936 AU	conjunction	4761 Mar 07 17:30	17° 04 '31	-5°-34'-20
opposition	4752 Aug 22 21:40	2° 27 '38	-1°-28'-5	minimum elong	4761 Mar 07 17:20	17° 04 '30	5°34'20
direct	4752 Nov 11 20:31	1° 12 '20		max. Earth dist.	4761 Mar 10 09:16	17° 09 '30	37.31220 AU

retrograde	4761 Jun 18 12:54	19° 18 06'24		opposition	4769 Sep 21 00:49	0° 14 14'28	-9°-29'-12
min. Earth dist.	4761 Sep 05 12:36	17° 18 58'05	35.45026 AU		4769 Oct 01 23:45	30° 18 18	
opposition	4761 Sep 08 05:31	17° 18 54'20	-6°-7'-24	direct	4769 Dec 11 08:01	29° 18 05'05	
direct	4761 Nov 28 09:39	16° 18 42'31			4770 Feb 15 11:57	0° 14 14	
conjunction	4762 Mar 09 13:43	18° 18 41'57	-6°00'-59	conjunction	4770 Mar 21 14:21	0° 14 57'19	-9°-11'-5
minimum elong	4762 Mar 09 13:32	18° 18 41'56	6°01'00	minimum elong	4770 Mar 21 14:08	0° 14 57'18	9°11'06
max. Earth dist.	4762 Mar 12 05:23	18° 18 46'53	37.56910 AU	max. Earth dist.	4770 Mar 24 11:37	1° 14 02'25	39.61943 AU
retrograde	4762 Jun 20 08:16	20° 18 42'58		retrograde	4770 Jul 02 06:38	2° 14 51'54	
min. Earth dist.	4762 Sep 07 10:14	19° 18 34'55	35.70854 AU	min. Earth dist.	4770 Sep 19 21:52	1° 14 46'00	37.77459 AU
opposition	4762 Sep 10 03:38	19° 18 31'10	-6°-35'-4	opposition	4770 Sep 22 19:05	1° 14 42'11	-9°-51'-19
direct	4762 Nov 30 08:04	18° 18 19'39		direct	4770 Dec 13 02:41	0° 14 33'07	
conjunction	4763 Mar 11 09:33	20° 18 18'07	-6°-26'-59	conjunction	4771 Mar 23 06:38	2° 14 24'34	-9°-31'-58
minimum elong	4763 Mar 11 09:22	20° 18 18'06	6°27'00	minimum elong	4771 Mar 23 06:26	2° 14 24'33	9°31'59
max. Earth dist.	4763 Mar 14 02:26	20° 18 23'07	37.82520 AU	max. Earth dist.	4771 Mar 26 03:10	2° 14 29'35	39.87538 AU
retrograde	4763 Jun 22 02:44	22° 18 18'15		retrograde	4771 Jul 04 00:56	4° 14 18'27	
min. Earth dist.	4763 Sep 09 08:03	21° 18 10'25	35.96598 AU	min. Earth dist.	4771 Sep 21 14:35	3° 14 12'53	38.03195 AU
opposition	4763 Sep 12 01:18	21° 18 06'42	-7°-2'-2	opposition	4771 Sep 24 13:03	3° 14 09'01	-10°-12'-46
direct	4763 Dec 02 06:32	19° 18 55'30		direct	4771 Dec 14 18:58	2° 14 00'16	
conjunction	4764 Mar 12 04:33	21° 18 52'58	-6°-52'-22	conjunction	4772 Mar 23 22:33	3° 14 50'59	-9°-52'-15
minimum elong	4764 Mar 12 04:22	21° 18 52'57	6°52'24	minimum elong	4772 Mar 23 22:20	3° 14 50'58	9°52'16
max. Earth dist.	4764 Mar 14 21:03	21° 18 57'54	38.08064 AU	max. Earth dist.	4772 Mar 26 20:02	3° 14 56'01	40.12969 AU
retrograde	4764 Jun 22 23:09	23° 18 52'15		retrograde	4772 Jul 04 17:42	5° 14 44'11	
min. Earth dist.	4764 Sep 10 03:36	22° 18 44'44	36.22323 AU	min. Earth dist.	4772 Sep 22 09:17	4° 14 38'48	38.28745 AU
opposition	4764 Sep 12 22:26	22° 18 40'56	-7°-28'-18	opposition	4772 Sep 25 06:50	4° 14 35'01	-10°-33'-34
direct	4764 Dec 03 02:39	21° 18 30'01		direct	4772 Dec 15 12:26	3° 14 26'35	
conjunction	4765 Mar 13 23:18	23° 18 26'33	-7°-17'-6	conjunction	4773 Mar 25 14:20	5° 14 16'33	-10°-11'-56
minimum elong	4765 Mar 13 23:07	23° 18 26'32	7°17'07	minimum elong	4773 Mar 25 14:08	5° 14 16'32	10°11'56
max. Earth dist.	4765 Mar 16 17:29	23° 18 31'34	38.33602 AU	max. Earth dist.	4773 Mar 28 11:23	5° 14 21'32	40.38191 AU
retrograde	4765 Jun 24 18:01	25° 18 24'58		retrograde	4773 Jul 06 08:34	7° 14 09'04	
min. Earth dist.	4765 Sep 12 00:37	24° 18 17'39	36.48076 AU	min. Earth dist.	4773 Sep 24 01:57	6° 14 03'58	38.54045 AU
opposition	4765 Sep 14 19:05	24° 18 13'54	-7°-53'-53	opposition	4773 Sep 26 23:58	6° 14 00'10	-10°-53'-44
direct	4765 Dec 04 23:34	23° 18 03'16		direct	4773 Dec 17 06:32	4° 14 52'01	
conjunction	4766 Mar 15 17:30	24° 18 58'53	-7°-41'-11	conjunction	4774 Mar 27 05:42	6° 14 41'16	-10°-31'-1
minimum elong	4766 Mar 15 17:18	24° 18 58'52	7°41'13	minimum elong	4774 Mar 27 05:29	6° 14 41'15	10°31'03
max. Earth dist.	4766 Mar 18 11:37	25° 18 03'52	38.59192 AU	max. Earth dist.	4774 Mar 30 02:19	6° 14 46'11	40.63136 AU
retrograde	4766 Jun 26 12:56	26° 18 56'28		retrograde	4774 Jul 07 23:20	8° 14 33'07	
min. Earth dist.	4766 Sep 13 19:02	25° 18 49'28	36.73886 AU	min. Earth dist.	4774 Sep 25 19:15	7° 14 28'14	38.79070 AU
opposition	4766 Sep 16 15:06	25° 18 45'39	-8°-18'-46	opposition	4774 Sep 28 16:55	7° 14 24'27	-11°-13'-17
direct	4766 Dec 06 19:56	24° 18 35'18		direct	4774 Dec 19 00:14	6° 14 16'35	
conjunction	4767 Mar 17 11:16	26° 18 30'02	-8°-4'-38	conjunction	4775 Mar 28 20:48	8° 14 05'05	-10°-49'-32
minimum elong	4767 Mar 17 11:04	26° 18 30'01	8°04'38	minimum elong	4775 Mar 28 20:36	8° 14 05'04	10°49'34
max. Earth dist.	4767 Mar 20 06:22	26° 18 35'04	38.84830 AU	max. Earth dist.	4775 Mar 31 18:02	8° 14 10'02	40.87801 AU
retrograde	4767 Jun 28 06:01	28° 18 26'50		retrograde	4775 Jul 09 11:57	9° 14 56'17	
min. Earth dist.	4767 Sep 15 14:33	27° 18 20'05	36.99765 AU	min. Earth dist.	4775 Sep 27 12:08	8° 14 51'34	39.03802 AU
opposition	4767 Sep 18 10:46	27° 18 16'16	-8°-42'-56	opposition	4775 Sep 30 09:19	8° 14 47'50	-11°-32'-14
direct	4767 Dec 08 16:01	26° 18 06'15		direct	4775 Dec 20 19:17	7° 14 40'13	
conjunction	4768 Mar 18 04:45	28° 18 00'07	-8°-27'-25	conjunction	4776 Mar 29 11:23	9° 14 28'00	-11°-7'-29
minimum elong	4768 Mar 18 04:32	28° 18 00'06	8°27'27	minimum elong	4776 Mar 29 11:10	9° 14 27'59	11°07'30
max. Earth dist.	4768 Mar 21 00:47	28° 18 05'11	39.10536 AU	max. Earth dist.	4776 Apr 01 07:33	9° 14 32'50	41.12208 AU
retrograde	4768 Jun 28 20:39	29° 18 56'08		retrograde	4776 Jul 10 04:24	11° 14 18'32	
min. Earth dist.	4768 Sep 16 09:00	28° 18 49'42	37.25679 AU	min. Earth dist.	4776 Sep 28 03:25	10° 14 14'03	39.28320 AU
opposition	4768 Sep 19 05:58	28° 18 45'51	-9°-6'-25	opposition	4776 Oct 01 01:25	10° 14 10'18	-11°-50'-33
direct	4768 Dec 09 13:46	27° 18 36'09		direct	4776 Dec 21 09:51	9° 14 02'55	
conjunction	4769 Mar 19 21:34	29° 18 29'11	-8°-49'-34	conjunction	4777 Mar 31 01:38	10° 14 49'59	-11°-24'-51
minimum elong	4769 Mar 19 21:22	29° 18 29'10	8°49'35	minimum elong	4777 Mar 31 01:26	10° 14 49'58	11°24'52
max. Earth dist.	4769 Mar 22 17:27	29° 18 34'13	39.36253 AU	max. Earth dist.	4777 Apr 02 22:58	10° 14 54'52	41.36418 AU
	4769 Apr 06 11:14	0° 14 00		retrograde	4777 Jul 11 19:05	12° 14 39'53	
retrograde	4769 Jun 30 14:20	1° 14 24'29		min. Earth dist.	4777 Sep 29 20:11	11° 14 35'32	39.52664 AU
min. Earth dist.	4769 Sep 18 02:56	0° 14 18'21	37.51603 AU	opposition	4777 Oct 02 17:10	11° 14 31'51	-12°-8'-16

direct	4777 Dec 23 01:31	10° Υ 24'43		minimum elong	4786 Apr 11 21:03	22° Υ 33'49	13°35'59
				max. Earth dist.	4786 Apr 14 16:57	22° Υ 38'22	43.47410 AU
conjunction	4778 Apr 01 15:36	12° Υ 11'05	-11°-41'-38	retrograde	4786 Jul 23 14:15	24° Υ 18'38	
minimum elong	4778 Apr 01 15:23	12° Υ 11'04	11°41'38	min. Earth dist.	4786 Oct 12 03:18	23° Υ 16'09	41.64397 AU
max. Earth dist.	4778 Apr 04 12:22	12° Υ 15'54	41.60493 AU	opposition	4786 Oct 14 23:25	23° Υ 12'37	-14°-21'-15
retrograde	4778 Jul 13 09:27	14° Υ 00'20		direct	4787 Jan 04 08:20	22° Υ 07'43	
min. Earth dist.	4778 Oct 01 10:07	12° Υ 56'16	39.76885 AU				
opposition	4778 Oct 04 08:14	12° Υ 52'31	-12°-25'-21	conjunction	4787 Apr 13 09:02	23° Υ 48'43	-13°-48'00
direct	4778 Dec 24 15:52	11° Υ 45'38		minimum elong	4787 Apr 13 08:52	23° Υ 48'42	13°48'01
				max. Earth dist.	4787 Apr 16 05:01	23° Υ 53'16	43.69402 AU
conjunction	4779 Apr 03 05:11	13° Υ 31'21	-11°-57'-50	retrograde	4787 Jul 24 23:44	25° Υ 33'01	
minimum elong	4779 Apr 03 05:00	13° Υ 31'20	11°57'52	min. Earth dist.	4787 Oct 13 17:09	24° Υ 30'38	41.86352 AU
max. Earth dist.	4779 Apr 06 02:27	13° Υ 36'10	41.84454 AU	opposition	4787 Oct 16 12:05	24° Υ 27'10	-14°-33'-22
retrograde	4779 Jul 14 23:09	15° Υ 19'59		direct	4788 Jan 05 23:23	23° Υ 22'27	
min. Earth dist.	4779 Oct 03 01:35	14° Υ 16'06	40.01013 AU				
opposition	4779 Oct 05 23:17	14° Υ 12'24	-12°-41'-50	conjunction	4788 Apr 13 20:16	25° Υ 02'53	-13°-59'-33
direct	4779 Dec 26 06:26	13° Υ 05'45		minimum elong	4788 Apr 13 20:07	25° Υ 02'53	13°59'34
				max. Earth dist.	4788 Apr 16 14:46	25° Υ 07'19	43.91001 AU
conjunction	4780 Apr 03 18:28	14° Υ 50'50	-12°-13'-28	retrograde	4788 Jul 25 12:17	26° Υ 46'40	
minimum elong	4780 Apr 03 18:16	14° Υ 50'49	12°13'29	min. Earth dist.	4788 Oct 14 05:07	25° Υ 44'27	42.07944 AU
max. Earth dist.	4780 Apr 06 16:13	14° Υ 55'40	42.08330 AU	opposition	4788 Oct 17 00:28	25° Υ 40'59	-14°-45'00
retrograde	4780 Jul 15 10:06	16° Υ 38'53		direct	4789 Jan 06 11:22	24° Υ 36'27	
min. Earth dist.	4780 Oct 03 15:52	15° Υ 35'14	40.25025 AU				
opposition	4780 Oct 06 13:53	15° Υ 31'31	-12°-57'-43	conjunction	4789 Apr 15 07:26	26° Υ 16'20	-14°-10'-38
direct	4780 Dec 26 23:10	14° Υ 25'09		minimum elong	4789 Apr 15 07:16	26° Υ 16'20	14°10'40
				max. Earth dist.	4789 Apr 18 02:28	26° Υ 20'47	44.12256 AU
conjunction	4781 Apr 05 07:25	16° Υ 09'36	-12°-28'-33	retrograde	4789 Jul 27 01:00	27° Υ 59'36	
minimum elong	4781 Apr 05 07:14	16° Υ 09'35	12°28'34	min. Earth dist.	4789 Oct 15 18:34	26° Υ 57'28	42.29224 AU
max. Earth dist.	4781 Apr 08 04:32	16° Υ 14'22	42.32085 AU	opposition	4789 Oct 18 12:29	26° Υ 54'05	-14°-56'-9
retrograde	4781 Jul 16 22:49	17° Υ 57'06		direct	4790 Jan 07 22:22	25° Υ 49'44	
min. Earth dist.	4781 Oct 05 05:46	16° Υ 53'41	40.48916 AU				
opposition	4781 Oct 08 04:08	16° Υ 49'58	-13°-13'-1	conjunction	4790 Apr 16 18:20	27° Υ 29'06	-14°-21'-15
direct	4781 Dec 28 13:59	15° Υ 43'51		minimum elong	4790 Apr 16 18:12	27° Υ 29'05	14°21'17
				max. Earth dist.	4790 Apr 19 12:43	27° Υ 33'28	44.33245 AU
conjunction	4782 Apr 06 20:18	17° Υ 27'42	-12°-43'-4	retrograde	4790 Jul 28 11:38	29° Υ 11'51	
minimum elong	4782 Apr 06 20:06	17° Υ 27'41	12°43'05	min. Earth dist.	4790 Oct 17 05:38	28° Υ 09'55	42.50243 AU
max. Earth dist.	4782 Apr 09 18:28	17° Υ 32'31	42.55692 AU	opposition	4790 Oct 20 00:08	28° Υ 06'31	-15°-6'-48
retrograde	4782 Jul 18 11:45	19° Υ 14'39		direct	4791 Jan 09 09:11	27° Υ 02'21	
min. Earth dist.	4782 Oct 06 20:42	18° Υ 11'24	40.72613 AU				
opposition	4782 Oct 09 18:09	18° Υ 07'45	-13°-27'-44	conjunction	4791 Apr 18 04:48	28° Υ 41'12	-14°-31'-24
direct	4782 Dec 30 04:52	17° Υ 01'54		minimum elong	4791 Apr 18 04:39	28° Υ 41'12	14°31'25
				max. Earth dist.	4791 Apr 20 22:43	28° Υ 45'31	44.53989 AU
conjunction	4783 Apr 08 08:44	18° Υ 45'09	-12°-57'-3		4791 Jun 14 10:25	0° \mathcal{B}	
minimum elong	4783 Apr 08 08:33	18° Υ 45'09	12°57'05	retrograde	4791 Jul 29 21:18	0° \mathcal{B} 23'29	
max. Earth dist.	4783 Apr 11 05:49	18° Υ 49'52	42.79088 AU		4791 Sep 14 12:21	30° \mathcal{R} Υ	
retrograde	4783 Jul 20 02:51	20° Υ 31'34		min. Earth dist.	4791 Oct 18 17:51	29° Υ 21'41	42.71047 AU
min. Earth dist.	4783 Oct 08 09:36	19° Υ 28'35	40.96071 AU	opposition	4791 Oct 21 11:42	29° Υ 18'19	-15°-16'-57
opposition	4783 Oct 11 07:47	19° Υ 24'55	-13°-41'-53	direct	4792 Jan 10 21:23	28° Υ 14'22	
direct	4783 Dec 31 16:23	18° Υ 19'19					
				conjunction	4792 Apr 18 15:17	29° Υ 52'44	-14°-41'-4
conjunction	4784 Apr 08 21:05	20° Υ 02'00	-13°-10'-31	minimum elong	4792 Apr 18 15:11	29° Υ 52'44	14°41'05
minimum elong	4784 Apr 08 20:55	20° Υ 02'00	13°10'32	max. Earth dist.	4792 Apr 21 09:51	29° Υ 57'05	44.74538 AU
max. Earth dist.	4784 Apr 11 18:27	20° Υ 06'43	43.02211 AU		4792 Apr 23 06:33	0° \mathcal{B}	
retrograde	4784 Jul 20 15:52	21° Υ 47'53		retrograde	4792 Jul 30 04:54	1° \mathcal{B} 34'34	
min. Earth dist.	4784 Oct 09 00:35	20° Υ 45'03	41.19232 AU	min. Earth dist.	4792 Oct 19 05:28	0° \mathcal{B} 32'56	42.91632 AU
opposition	4784 Oct 11 21:23	20° Υ 41'28	-13°-55'-31	opposition	4792 Oct 21 22:56	0° \mathcal{B} 29'36	-15°-26'-37
direct	4785 Jan 01 04:57	19° Υ 36'07			4792 Nov 16 03:42	30° \mathcal{R} Υ	
				direct	4793 Jan 11 11:19	29° Υ 25'51	
conjunction	4785 Apr 10 09:16	21° Υ 18'14	-13°-23'-29		4793 Mar 06 13:41	0° \mathcal{B}	
minimum elong	4785 Apr 10 09:06	21° Υ 18'13	13°23'31				
max. Earth dist.	4785 Apr 13 06:10	21° Υ 22'53	43.25012 AU	conjunction	4793 Apr 20 01:22	1° \mathcal{B} 03'46	-14°-50'-16
retrograde	4785 Jul 22 02:47	23° Υ 03'35		minimum elong	4793 Apr 20 01:14	1° \mathcal{B} 03'45	14°50'18
min. Earth dist.	4785 Oct 10 13:47	22° Υ 00'56	41.42017 AU	max. Earth dist.	4793 Apr 22 18:39	1° \mathcal{B} 08'01	44.94873 AU
opposition	4785 Oct 13 10:33	21° Υ 57'22	-14°-8'-38	retrograde	4793 Jul 31 16:17	2° \mathcal{B} 45'10	
direct	4786 Jan 02 18:56	20° Υ 52'15		min. Earth dist.	4793 Oct 20 16:03	1° \mathcal{B} 43'44	43.11996 AU
				opposition	4793 Oct 23 09:57	1° \mathcal{B} 40'24	-15°-35'-49
conjunction	4786 Apr 11 21:13	22° Υ 33'49	-13°-35'-59	direct	4794 Jan 12 21:50	0° \mathcal{B} 36'52	

conjunction	4794 Apr 21 11:26	2°8'14"20	-14°-59'-2	retrograde	4802 Aug 11 04:58	13°8'00"52	
minimum elong	4794 Apr 21 11:20	2°8'14"19	14°59'03	min. Earth dist.	4802 Oct 31 16:31	12°8'00"29	44.78356 AU
max. Earth dist.	4794 Apr 24 05:19	2°8'18"36	45.14965 AU	opposition	4802 Nov 03 03:16	11°8'57"35	-16°-39'-32
retrograde	4794 Aug 02 03:17	3°8'55"20		direct	4803 Jan 23 14:17	10°8'55"35	
min. Earth dist.	4794 Oct 22 04:17	2°8'54"01	43.32087 AU				
opposition	4794 Oct 24 20:40	2°8'50"46	-15°-44'-32	conjunction	4803 May 01 21:54	12°8'29"19	-15°-59'-51
direct	4795 Jan 14 08:42	1°8'47"28		minimum elong	4803 May 01 21:52	12°8'29"19	15°59'52
				max. Earth dist.	4803 May 04 08:48	12°8'33"00	46.78572 AU
conjunction	4795 Apr 22 21:17	3°8'24"30	-15°-7'-21	retrograde	4803 Aug 12 12:50	14°8'06"42	
minimum elong	4795 Apr 22 21:10	3°8'24"29	15°07'22	min. Earth dist.	4803 Nov 02 01:38	13°8'06"25	44.94947 AU
max. Earth dist.	4795 Apr 25 14:08	3°8'28"40	45.34783 AU	opposition	4803 Nov 04 12:12	13°8'03"32	-16°-44'-38
retrograde	4795 Aug 03 15:08	5°8'05"05		direct	4804 Jan 24 23:22	12°8'01"40	
min. Earth dist.	4795 Oct 23 14:24	4°8'03"59	43.51869 AU				
opposition	4795 Oct 26 07:11	4°8'00"44	-15°-52'-49	conjunction	4804 May 02 06:05	13°8'35"01	-16°-4'-43
direct	4796 Jan 15 16:38	2°8'57"38		minimum elong	4804 May 02 06:02	13°8'35"01	16°04'44
				max. Earth dist.	4804 May 04 17:36	13°8'38"43	46.94949 AU
conjunction	4796 Apr 23 06:48	4°8'34"16	-15°-15'-15		4804 Jul 10 18:29	15°8'	
minimum elong	4796 Apr 23 06:42	4°8'34"16	15°15'17	retrograde	4804 Aug 12 18:54	15°8'12"04	
max. Earth dist.	4796 Apr 25 23:12	4°8'38"24	45.54255 AU		4804 Sep 15 11:48	15°8'	
retrograde	4796 Aug 04 02:20	6°8'14"28		min. Earth dist.	4804 Nov 02 11:31	14°8'11"51	45.11277 AU
min. Earth dist.	4796 Oct 24 02:20	5°8'13"29	43.71286 AU	opposition	4804 Nov 04 20:56	14°8'09"01	-16°-49'-20
opposition	4796 Oct 26 17:41	5°8'10"18	-16°00'-40	direct	4805 Jan 25 10:48	13°8'07"18	
direct	4797 Jan 16 00:38	4°8'07"25					
				conjunction	4805 May 03 14:10	14°8'40"17	-16°-9'-11
conjunction	4797 Apr 24 16:30	5°8'43"38	-15°-22'-45	minimum elong	4805 May 03 14:08	14°8'40"17	16°09'12
minimum elong	4797 Apr 24 16:25	5°8'43"38	15°22'46	max. Earth dist.	4805 May 06 00:26	14°8'43"54	47.11085 AU
max. Earth dist.	4797 Apr 27 08:39	5°8'47"44	45.73339 AU		4805 May 16 22:40	15°8'	
retrograde	4797 Aug 05 09:12	7°8'23"27		retrograde	4805 Aug 14 04:28	16°8'16"58	
min. Earth dist.	4797 Oct 25 13:05	6°8'22"36	43.90260 AU	min. Earth dist.	4805 Nov 03 19:25	15°8'16"55	45.27358 AU
opposition	4797 Oct 28 03:42	6°8'19"28	-16°-8'-6	opposition	4805 Nov 06 05:15	15°8'14"05	-16°-53'-39
direct	4798 Jan 17 13:07	5°8'16"46			4805 Nov 18 06:34	15°8'	
				direct	4806 Jan 26 18:49	14°8'12"30	
conjunction	4798 Apr 26 01:54	6°8'52"35	-15°-29'-52		4806 Apr 03 01:58	15°8'	
minimum elong	4798 Apr 26 01:49	6°8'52"35	15°29'54				
max. Earth dist.	4798 Apr 28 16:07	6°8'56"33	45.91960 AU	conjunction	4806 May 04 22:05	15°8'45"09	-16°-13'-17
retrograde	4798 Aug 06 17:21	8°8'32"00		minimum elong	4806 May 04 22:02	15°8'45"09	16°13'18
min. Earth dist.	4798 Oct 26 23:41	7°8'31"17	44.08760 AU	max. Earth dist.	4806 May 07 08:12	15°8'48"44	47.26956 AU
opposition	4798 Oct 29 13:42	7°8'28"11	-16°-15'-10	retrograde	4806 Aug 15 15:14	17°8'21"31	
direct	4799 Jan 19 00:43	6°8'25"39		min. Earth dist.	4806 Nov 05 05:20	16°8'21"32	45.43161 AU
				opposition	4806 Nov 07 13:40	16°8'18"46	-16°-57'-34
conjunction	4799 Apr 27 11:09	8°8'01"03	-15°-36'-37	direct	4807 Jan 28 00:59	15°8'17"22	
minimum elong	4799 Apr 27 11:04	8°8'01"03	15°36'38				
max. Earth dist.	4799 Apr 30 01:31	8°8'05"01	46.10095 AU	conjunction	4807 May 06 05:50	16°8'49"41	-16°-17'-1
retrograde	4799 Aug 08 02:27	9°8'40"04		minimum elong	4807 May 06 05:49	16°8'49"41	16°17'03
min. Earth dist.	4799 Oct 28 11:14	8°8'39"24	44.26762 AU	max. Earth dist.	4807 May 08 15:40	16°8'53"15	47.42544 AU
opposition	4799 Oct 30 23:33	8°8'36"24	-16°-21'-50	retrograde	4807 Aug 16 21:57	18°8'25"44	
direct	4800 Jan 20 12:30	7°8'34"01		min. Earth dist.	4807 Nov 06 13:31	17°8'25"54	45.58638 AU
				opposition	4807 Nov 08 21:48	17°8'23"09	-17°-1'-8
conjunction	4800 Apr 27 20:10	9°8'08"59	-15°-42'-59	direct	4808 Jan 29 08:51	16°8'21"55	
minimum elong	4800 Apr 27 20:06	9°8'08"58	15°43'02				
max. Earth dist.	4800 Apr 30 08:58	9°8'12"49	46.27772 AU	conjunction	4808 May 06 13:28	17°8'53"56	-16°-20'-24
retrograde	4800 Aug 08 13:17	10°8'47"35		minimum elong	4808 May 06 13:26	17°8'53"55	16°20'25
min. Earth dist.	4800 Oct 28 20:30	9°8'47"03	44.44325 AU	max. Earth dist.	4808 May 08 21:46	17°8'57"23	47.57787 AU
opposition	4800 Oct 31 09:01	9°8'44"03	-16°-28'-7	retrograde	4808 Aug 17 05:01	19°8'29"40	
direct	4801 Jan 20 20:53	8°8'41"47		min. Earth dist.	4808 Nov 06 22:34	18°8'29"57	45.73755 AU
				opposition	4808 Nov 09 05:53	18°8'27"15	-17°-4'-21
conjunction	4801 Apr 29 04:55	10°8'16"20	-15°-49'00	direct	4809 Jan 29 16:57	17°8'26"10	
minimum elong	4801 Apr 29 04:51	10°8'16"19	15°49'01				
max. Earth dist.	4801 May 01 17:13	10°8'20"07	46.45029 AU	conjunction	4809 May 07 21:11	18°8'57"54	-16°-23'-27
retrograde	4801 Aug 09 22:42	11°8'54"31		minimum elong	4809 May 07 21:11	18°8'57"54	16°23'29
min. Earth dist.	4801 Oct 30 07:27	10°8'54"01	44.61505 AU	max. Earth dist.	4809 May 10 05:43	19°8'01"21	47.72633 AU
opposition	4801 Nov 01 18:24	10°8'51"06	-16°-34'-1	retrograde	4809 Aug 18 10:45	20°8'33"21	
direct	4802 Jan 22 04:57	9°8'48"58		min. Earth dist.	4809 Nov 08 08:03	19°8'33"42	45.88420 AU
				opposition	4809 Nov 10 13:48	19°8'31"05	-17°-7'-13
conjunction	4802 Apr 30 13:36	11°8'23"06	-15°-54'-37	direct	4810 Jan 31 03:35	18°8'30"09	
minimum elong	4802 Apr 30 13:32	11°8'23"06	15°54'39				
max. Earth dist.	4802 May 03 01:48	11°8'26"52	46.61947 AU	conjunction	4810 May 09 04:44	20°8'01"35	-16°-26'-12

minimum elong	4810 May 09 04:44	20° 8 01'35	16°26'12	min. Earth dist.	4818 Nov 18 06:57	28° 8 52'44	47.01398 AU
max. Earth dist.	4810 May 11 11:12	20° 8 04'54	47.87012 AU	opposition	4818 Nov 20 05:39	28° 8 50'30	-17°-18'-53
retrograde	4810 Aug 19 19:39	21° 8 36'45		direct	4819 Feb 09 16:37	27° 8 50'36	
min. Earth dist.	4810 Nov 09 15:48	20° 8 37'14	46.02597 AU				
opposition	4810 Nov 11 21:25	20° 8 34'38	-17°-9'-47	conjunction	4819 May 18 18:21	29° 8 19'35	-16°-37'-1
direct	4811 Feb 01 10:56	19° 8 33'50		minimum elong	4819 May 18 18:23	29° 8 19'36	16°37'02
				max. Earth dist.	4819 May 20 18:49	29° 8 22'28	48.98154 AU
conjunction	4811 May 10 12:11	21° 8 04'58	-16°-28'-38		4819 Jun 17 03:13	0° II	
minimum elong	4811 May 10 12:12	21° 8 04'58	16°28'40	retrograde	4819 Aug 29 07:09	0° II 52'18	
max. Earth dist.	4811 May 12 17:59	21° 8 08'14	48.00886 AU		4819 Nov 13 19:25	30° R 8	
retrograde	4811 Aug 21 04:30	22° 8 39'51		min. Earth dist.	4819 Nov 19 14:24	29° 8 53'24	47.12309 AU
min. Earth dist.	4811 Nov 11 01:40	21° 8 40'21	46.16266 AU	opposition	4819 Nov 21 12:07	29° 8 51'13	-17°-18'-35
opposition	4811 Nov 13 05:10	21° 8 37'51	-17°-12'-3	direct	4820 Feb 11 01:18	28° 8 51'27	
direct	4812 Feb 02 17:49	20° 8 37'11			4820 May 04 15:53	0° II	
conjunction	4812 May 10 19:26	22° 8 08'01	-16°-30'-47	conjunction	4820 May 19 00:32	0° II 20'13	-16°-36'-40
minimum elong	4812 May 10 19:27	22° 8 08'01	16°30'47	minimum elong	4820 May 19 00:37	0° II 20'13	16°36'41
max. Earth dist.	4812 May 13 00:27	22° 8 11'13	48.14282 AU	max. Earth dist.	4820 May 20 23:13	0° II 22'59	49.08892 AU
retrograde	4812 Aug 21 11:41	23° 8 42'34		retrograde	4820 Aug 29 13:32	1° II 52'42	
min. Earth dist.	4812 Nov 11 09:16	22° 8 43'10	46.29455 AU	min. Earth dist.	4820 Nov 19 21:01	0° II 53'55	47.22838 AU
opposition	4812 Nov 13 12:32	22° 8 40'42	-17°-14'00	opposition	4820 Nov 21 18:29	0° II 51'45	-17°-17'-58
direct	4813 Feb 02 23:49	21° 8 40'08			4821 Jan 15 10:23	30° R 8	
conjunction	4813 May 12 02:29	23° 8 10'41	-16°-32'-37	direct	4821 Feb 11 08:00	29° 8 52'06	
minimum elong	4813 May 12 02:30	23° 8 10'41	16°32'39		4821 Mar 09 20:22	0° II	
max. Earth dist.	4813 May 14 05:53	23° 8 13'46	48.27222 AU	conjunction	4821 May 20 06:56	1° II 20'39	-16°-36'-2
retrograde	4813 Aug 22 18:27	24° 8 44'56		minimum elong	4821 May 20 06:59	1° II 20'40	16°36'03
min. Earth dist.	4813 Nov 12 17:37	23° 8 45'34	46.42236 AU	max. Earth dist.	4821 May 22 05:04	1° II 23'23	49.19200 AU
opposition	4813 Nov 14 19:41	23° 8 43'09	-17°-15'-38	retrograde	4821 Aug 30 20:53	2° II 52'56	
direct	4814 Feb 04 06:04	22° 8 42'42		min. Earth dist.	4821 Nov 21 05:29	1° II 54'09	47.32900 AU
conjunction	4814 May 13 09:33	24° 8 12'57	-16°-34'-9	opposition	4821 Nov 23 00:42	1° II 52'06	-17°-17'-6
minimum elong	4814 May 13 09:35	24° 8 12'57	16°34'10	direct	4822 Feb 12 15:31	0° II 52'33	
max. Earth dist.	4814 May 15 13:10	24° 8 16'03	48.39787 AU	conjunction	4822 May 21 13:19	2° II 20'54	-16°-35'-9
retrograde	4814 Aug 23 22:11	25° 8 46'55		minimum elong	4822 May 21 13:24	2° II 20'54	16°35'11
min. Earth dist.	4814 Nov 14 01:42	24° 8 47'36	46.54650 AU	max. Earth dist.	4822 May 23 10:18	2° II 23'33	49.29028 AU
opposition	4814 Nov 16 02:45	24° 8 45'15	-17°-16'-56	retrograde	4822 Sep 01 04:43	3° II 52'57	
direct	4815 Feb 05 16:06	23° 8 44'53		min. Earth dist.	4822 Nov 22 11:59	2° II 54'15	47.42441 AU
conjunction	4815 May 14 16:10	25° 8 14'51	-16°-35'-21	opposition	4822 Nov 24 06:50	2° II 52'13	-17°-15'-58
minimum elong	4815 May 14 16:11	25° 8 14'51	16°35'23	direct	4823 Feb 13 20:14	1° II 52'46	
max. Earth dist.	4815 May 16 18:15	25° 8 17'52	48.52027 AU	conjunction	4823 May 22 19:21	3° II 20'54	-16°-34'-1
retrograde	4815 Aug 25 05:01	26° 8 48'33		minimum elong	4823 May 22 19:26	3° II 20'54	16°34'03
min. Earth dist.	4815 Nov 15 08:28	25° 8 49'21	46.66765 AU	max. Earth dist.	4823 May 24 14:23	3° II 23'25	49.38314 AU
opposition	4815 Nov 17 09:40	25° 8 46'59	-17°-17'-55	retrograde	4823 Sep 02 12:25	4° II 52'44	
direct	4816 Feb 07 00:31	24° 8 46'44		min. Earth dist.	4823 Nov 23 19:52	3° II 54'01	47.51444 AU
conjunction	4816 May 14 22:52	26° 8 16'26	-16°-36'-14	opposition	4823 Nov 25 13:04	3° II 52'05	-17°-14'-35
minimum elong	4816 May 14 22:55	26° 8 16'26	16°36'16	direct	4824 Feb 14 23:40	2° II 52'41	
max. Earth dist.	4816 May 17 00:57	26° 8 19'26	48.63977 AU	conjunction	4824 May 23 01:35	4° II 20'36	-16°-32'-39
retrograde	4816 Aug 25 14:36	27° 8 49'52		minimum elong	4824 May 23 01:40	4° II 20'37	16°32'41
min. Earth dist.	4816 Nov 15 16:53	26° 8 50'42	46.78598 AU	max. Earth dist.	4824 May 24 20:22	4° II 23'07	49.47078 AU
opposition	4816 Nov 17 16:31	26° 8 48'25	-17°-18'-34	retrograde	4824 Sep 02 15:48	5° II 52'12	
direct	4817 Feb 07 06:42	25° 8 48'17		min. Earth dist.	4824 Nov 24 03:03	4° II 53'30	47.59922 AU
conjunction	4817 May 16 05:29	27° 8 17'44	-16°-36'-48	opposition	4824 Nov 25 18:58	4° II 51'37	-17°-12'-56
minimum elong	4817 May 16 05:31	27° 8 17'44	16°36'50	direct	4825 Feb 15 07:45	3° II 52'17	
max. Earth dist.	4817 May 18 06:58	27° 8 20'40	48.75666 AU	conjunction	4825 May 24 07:31	5° II 19'59	-16°-31'-1
retrograde	4817 Aug 26 22:01	28° 8 50'54		minimum elong	4825 May 24 07:36	5° II 19'59	16°31'02
min. Earth dist.	4817 Nov 16 23:14	27° 8 51'52	46.90145 AU	max. Earth dist.	4825 May 26 00:15	5° II 22'22	49.55354 AU
opposition	4817 Nov 18 23:07	27° 8 49'35	-17°-18'-53	retrograde	4825 Sep 03 20:03	6° II 51'21	
direct	4818 Feb 08 11:14	26° 8 49'34		min. Earth dist.	4825 Nov 25 09:19	5° II 52'41	47.67946 AU
conjunction	4818 May 17 11:53	28° 8 18'46	-16°-37'-4	opposition	4825 Nov 27 00:46	5° II 50'49	-17°-11'-2
minimum elong	4818 May 17 11:57	28° 8 18'46	16°37'05	direct	4826 Feb 16 15:10	4° II 51'33	
max. Earth dist.	4818 May 19 12:02	28° 8 21'38	48.87061 AU	conjunction	4826 May 25 13:21	6° II 19'02	-16°-29'-8
retrograde	4818 Aug 28 04:22	29° 8 51'42		minimum elong	4826 May 25 13:26	6° II 19'02	16°29'10

max. Earth dist.	4826 May 27 05:45	6°II21'23	49.63191 AU	opposition	4834 Dec 06 00:40	14°II34'52	-16°-41'-38
retrograde	4826 Sep 05 02:18	7°II50'11		direct	4835 Feb 25 12:29	13°II36'16	
min. Earth dist.	4826 Nov 26 16:51	6°II51'30	47.75561 AU				
opposition	4826 Nov 28 06:27	6°II49'43	-17°-8'-52	conjunction	4835 Jun 03 14:56	15°II02'30	-16°00'-10
direct	4827 Feb 17 22:22	5°II50'31		minimum elong	4835 Jun 03 15:04	15°II02'30	16°00'13
				max. Earth dist.	4835 Jun 04 22:04	15°II04'17	50.18252 AU
conjunction	4827 May 26 19:07	7°II17'47	-16°-26'-58	retrograde	4835 Sep 14 03:32	16°II32'17	
minimum elong	4827 May 26 19:13	7°II17'48	16°26'59	min. Earth dist.	4835 Dec 06 00:02	15°II33'58	48.28345 AU
max. Earth dist.	4827 May 28 10:40	7°II20'06	49.70674 AU	opposition	4835 Dec 07 05:43	15°II32'35	-16°-37'-7
retrograde	4827 Sep 06 09:21	8°II48'44		direct	4836 Feb 26 18:59	14°II34'01	
min. Earth dist.	4827 Nov 27 22:06	7°II50'08	47.82833 AU				
opposition	4827 Nov 29 11:57	7°II48'21	-17°-6'-25	conjunction	4836 Jun 03 20:15	16°II00'07	-15°-55'-45
direct	4828 Feb 19 02:32	6°II49'12		minimum elong	4836 Jun 03 20:23	16°II00'08	15°55'46
				max. Earth dist.	4836 Jun 05 02:40	16°II01'52	50.22170 AU
conjunction	4828 May 27 00:36	8°II16'18	-16°-24'-33	retrograde	4836 Sep 14 07:51	17°II29'46	
minimum elong	4828 May 27 00:41	8°II16'18	16°24'34	min. Earth dist.	4836 Dec 06 07:06	16°II31'23	48.31932 AU
max. Earth dist.	4828 May 28 14:49	8°II18'31	49.77826 AU	opposition	4836 Dec 07 10:45	16°II30'06	-16°-32'-22
retrograde	4828 Sep 06 15:45	9°II47'04		direct	4837 Feb 27 03:12	15°II31'34	
min. Earth dist.	4828 Nov 28 05:06	8°II48'27	47.89796 AU				
opposition	4828 Nov 29 17:32	8°II46'45	-17°-3'-41	conjunction	4837 Jun 05 01:35	16°II57'32	-15°-51'-7
direct	4829 Feb 19 06:28	7°II47'40		minimum elong	4837 Jun 05 01:43	16°II57'32	15°51'09
				max. Earth dist.	4837 Jun 06 06:46	16°II59'12	50.25604 AU
conjunction	4829 May 28 06:20	9°II14'37	-16°-21'-50	retrograde	4837 Sep 15 14:58	18°II27'02	
minimum elong	4829 May 28 06:27	9°II14'37	16°21'52	min. Earth dist.	4837 Dec 07 11:54	17°II28'40	48.35055 AU
max. Earth dist.	4829 May 29 20:48	9°II16'50	49.84681 AU	opposition	4837 Dec 08 15:22	17°II27'23	-16°-27'-24
retrograde	4829 Sep 07 18:08	10°II45'12		direct	4838 Feb 28 07:37	16°II28'52	
min. Earth dist.	4829 Nov 29 11:01	9°II46'39	47.96446 AU				
opposition	4829 Nov 30 22:45	9°II44'58	-17°00'-40	conjunction	4838 Jun 06 06:41	17°II54'42	-15°-46'-15
direct	4830 Feb 20 13:06	8°II45'58		minimum elong	4838 Jun 06 06:49	17°II54'43	15°46'16
				max. Earth dist.	4838 Jun 07 10:15	17°II56'17	50.28598 AU
conjunction	4830 May 29 11:47	10°II12'46	-16°-18'-51	retrograde	4838 Sep 16 21:29	19°II24'04	
minimum elong	4830 May 29 11:52	10°II12'47	16°18'53	opposition	4838 Dec 09 20:11	18°II24'27	-16°-22'-11
max. Earth dist.	4830 May 31 00:24	10°II14'54	49.91238 AU	min. Earth dist.	4838 Dec 08 18:26	18°II25'39	48.37784 AU
retrograde	4830 Sep 08 23:08	11°II43'12		direct	4839 Mar 01 10:20	17°II25'56	
min. Earth dist.	4830 Nov 30 16:31	10°II44'44	48.02796 AU				
opposition	4830 Dec 02 04:03	10°II43'04	-16°-57'-23	conjunction	4839 Jun 07 11:41	18°II51'39	-15°-41'-8
direct	4831 Feb 21 18:49	9°II44'09		minimum elong	4839 Jun 07 11:49	18°II51'40	15°41'10
				max. Earth dist.	4839 Jun 08 15:26	18°II53'14	50.31230 AU
conjunction	4831 May 30 17:08	11°II10'50	-16°-15'-37	retrograde	4839 Sep 18 00:16	20°II20'52	
minimum elong	4831 May 30 17:15	11°II10'50	16°15'39	min. Earth dist.	4839 Dec 09 23:41	19°II22'27	48.40159 AU
max. Earth dist.	4831 Jun 01 05:38	11°II12'56	49.97472 AU	opposition	4839 Dec 11 00:52	19°II21'16	-16°-16'-43
retrograde	4831 Sep 10 05:07	12°II41'09		direct	4840 Mar 01 15:17	18°II22'46	
min. Earth dist.	4831 Dec 01 23:42	11°II42'41	48.08801 AU				
opposition	4831 Dec 03 09:25	11°II41'06	-16°-53'-49	conjunction	4840 Jun 07 16:40	19°II48'23	-15°-35'-46
direct	4832 Feb 23 01:38	10°II42'17		minimum elong	4840 Jun 07 16:50	19°II48'24	15°35'48
				max. Earth dist.	4840 Jun 08 18:34	19°II49'52	50.33546 AU
conjunction	4832 May 30 22:37	12°II08'50	-16°-12'-6	retrograde	4840 Sep 18 03:38	21°II17'28	
minimum elong	4832 May 30 22:44	12°II08'51	16°12'08	min. Earth dist.	4840 Dec 10 04:33	20°II19'03	48.42242 AU
max. Earth dist.	4832 Jun 01 10:13	12°II10'53	50.03361 AU	opposition	4840 Dec 11 05:24	20°II17'54	-16°-11'00
retrograde	4832 Sep 10 12:24	13°II39'01		direct	4841 Mar 02 20:15	19°II19'25	
min. Earth dist.	4832 Dec 02 04:52	12°II40'40	48.14421 AU				
opposition	4832 Dec 03 14:27	12°II39'05	-16°-49'-59	conjunction	4841 Jun 08 21:43	20°II44'57	-15°-30'-10
direct	4833 Feb 23 05:24	11°II40'21		minimum elong	4841 Jun 08 21:51	20°II44'57	15°30'12
				max. Earth dist.	4841 Jun 09 23:25	20°II46'25	50.35565 AU
conjunction	4833 Jun 01 04:03	13°II06'48	-16°-8'-21	retrograde	4841 Sep 19 07:23	22°II13'56	
minimum elong	4833 Jun 01 04:11	13°II06'49	16°08'24	min. Earth dist.	4841 Dec 11 10:50	21°II15'29	48.44027 AU
max. Earth dist.	4833 Jun 02 13:50	13°II08'45	50.08822 AU	opposition	4841 Dec 12 10:02	21°II14'24	-16°-5'-1
retrograde	4833 Sep 11 20:48	14°II36'51		direct	4842 Mar 04 02:50	20°II15'57	
min. Earth dist.	4833 Dec 03 11:58	13°II38'30	48.19589 AU				
opposition	4833 Dec 04 19:39	13°II37'01	-16°-45'-55	conjunction	4842 Jun 10 02:37	21°II41'23	-15°-24'-18
direct	4834 Feb 24 06:38	12°II38'22		minimum elong	4842 Jun 10 02:47	21°II41'24	15°24'19
				max. Earth dist.	4842 Jun 11 03:36	21°II42'48	50.37309 AU
conjunction	4834 Jun 02 09:34	14°II04'42	-16°-4'-22	retrograde	4842 Sep 20 12:57	23°II10'17	
minimum elong	4834 Jun 02 09:41	14°II04'43	16°04'23	opposition	4842 Dec 13 14:26	22°II10'48	-15°-58'-46
max. Earth dist.	4834 Jun 03 19:01	14°II06'38	50.13799 AU	min. Earth dist.	4842 Dec 12 14:59	22°II11'54	48.45522 AU
retrograde	4834 Sep 13 00:30	15°II34'37		direct	4843 Mar 05 07:42	21°II12'23	
min. Earth dist.	4834 Dec 04 18:07	14°II36'18	48.24230 AU				

conjunction	4843 Jun 11 07:28	22°II37'46	-15°-18'-11	conjunction	4851 Jun 18 23:20	0°☾08'30	-14°-21'-18
minimum elong	4843 Jun 11 07:36	22°II37'46	15°18'12	minimum elong	4851 Jun 18 23:31	0°☾08'31	14°21'20
max. Earth dist.	4843 Jun 12 06:53	22°II39'05	50.38751 AU	max. Earth dist.	4851 Jun 19 13:41	0°☾09'19	50.34487 AU
retrograde	4843 Sep 21 21:03	24°II06'35		retrograde	4851 Sep 29 08:21	1°☾36'56	
opposition	4843 Dec 14 19:00	23°II07'10	-15°-52'-16	opposition	4851 Dec 22 05:56	0°☾37'45	-14°-52'-16
min. Earth dist.	4843 Dec 13 21:09	23°II08'11	48.46710 AU	min. Earth dist.	4851 Dec 21 17:42	0°☾38'19	48.39724 AU
direct	4844 Mar 05 09:18	22°II08'47			4852 Jan 27 23:08	30°RII	
				direct	4852 Mar 12 22:56	29°II39'28	
conjunction	4844 Jun 11 12:26	23°II34'08	-15°-11'-49		4852 Apr 26 02:52	0°☾	
minimum elong	4844 Jun 11 12:37	23°II34'08	15°11'51				
max. Earth dist.	4844 Jun 12 12:00	23°II35'28	50.39867 AU	conjunction	4852 Jun 19 04:12	1°☾04'38	-14°-13'-13
retrograde	4844 Sep 22 01:21	25°II02'53		minimum elong	4852 Jun 19 04:22	1°☾04'38	14°13'14
opposition	4844 Dec 14 23:25	24°II03'31	-15°-45'-32	max. Earth dist.	4852 Jun 19 17:40	1°☾05'23	50.31995 AU
min. Earth dist.	4844 Dec 14 02:24	24°II04'30	48.47522 AU	retrograde	4852 Sep 29 13:41	2°☾33'02	
direct	4845 Mar 06 13:16	23°II05'12		opposition	4852 Dec 22 10:06	1°☾33'51	-14°-43'-45
				min. Earth dist.	4852 Dec 21 21:44	1°☾34'26	48.36944 AU
conjunction	4845 Jun 12 17:24	24°II30'31	-15°-5'-14	direct	4853 Mar 14 04:00	0°☾35'34	
minimum elong	4845 Jun 12 17:34	24°II30'31	15°05'15				
max. Earth dist.	4845 Jun 13 14:48	24°II31'43	50.40581 AU	conjunction	4853 Jun 20 09:03	2°☾00'44	-14°-4'-53
retrograde	4845 Sep 23 05:32	25°II59'13		minimum elong	4853 Jun 20 09:15	2°☾00'44	14°04'54
min. Earth dist.	4845 Dec 15 07:39	25°II00'51	48.47907 AU	max. Earth dist.	4853 Jun 20 20:54	2°☾01'24	50.29179 AU
opposition	4845 Dec 16 03:43	24°II59'55	-15°-38'-34	retrograde	4853 Sep 30 21:53	3°☾29'07	
direct	4846 Mar 07 17:34	24°II01'38		opposition	4853 Dec 23 14:18	2°☾29'57	-14°-34'-59
				min. Earth dist.	4853 Dec 23 03:33	2°☾30'27	48.33861 AU
conjunction	4846 Jun 13 22:31	25°II26'55	-14°-58'-26	direct	4854 Mar 15 05:30	1°☾31'40	
minimum elong	4846 Jun 13 22:41	25°II26'56	14°58'28				
max. Earth dist.	4846 Jun 14 19:07	25°II28'05	50.40820 AU	conjunction	4854 Jun 21 14:00	2°☾56'51	-13°-56'-19
retrograde	4846 Sep 24 09:01	26°II55'35		minimum elong	4854 Jun 21 14:11	2°☾56'51	13°56'21
opposition	4846 Dec 17 08:16	25°II56'20	-15°-31'-23	max. Earth dist.	4854 Jun 22 02:02	2°☾57'31	50.26074 AU
min. Earth dist.	4846 Dec 16 14:15	25°II57'10	48.47782 AU	retrograde	4854 Oct 02 02:59	4°☾25'14	
direct	4847 Mar 09 00:48	24°II58'05		opposition	4854 Dec 24 18:32	3°☾26'05	-14°-25'-59
				min. Earth dist.	4854 Dec 24 08:14	3°☾26'33	48.30471 AU
conjunction	4847 Jun 15 03:28	26°II23'20	-14°-51'-25	direct	4855 Mar 16 07:52	2°☾27'47	
minimum elong	4847 Jun 15 03:38	26°II23'21	14°51'26				
max. Earth dist.	4847 Jun 15 22:43	26°II24'26	50.40549 AU	conjunction	4855 Jun 22 18:41	3°☾53'00	-13°-47'-31
retrograde	4847 Sep 25 15:37	27°II51'58		minimum elong	4855 Jun 22 18:53	3°☾53'01	13°47'33
opposition	4847 Dec 18 12:41	26°II52'45	-15°-24'00	max. Earth dist.	4855 Jun 23 04:54	3°☾53'35	50.22667 AU
min. Earth dist.	4847 Dec 17 19:00	26°II53'34	48.47123 AU	retrograde	4855 Oct 03 07:52	5°☾21'24	
direct	4848 Mar 09 04:59	25°II54'30		opposition	4855 Dec 25 22:49	4°☾22'16	-14°-16'-43
				min. Earth dist.	4855 Dec 25 13:11	4°☾22'43	48.26771 AU
conjunction	4848 Jun 15 08:30	27°II19'44	-14°-44'-13	direct	4856 Mar 16 11:13	3°☾23'59	
minimum elong	4848 Jun 15 08:41	27°II19'45	14°44'15				
max. Earth dist.	4848 Jun 16 01:42	27°II20'43	50.39733 AU	conjunction	4856 Jun 22 23:43	4°☾49'15	-13°-38'-29
retrograde	4848 Sep 25 22:53	28°II48'19		minimum elong	4856 Jun 22 23:53	4°☾49'15	13°38'31
opposition	4848 Dec 18 17:05	27°II49'07	-15°-16'-24	max. Earth dist.	4856 Jun 23 09:22	4°☾49'48	50.18913 AU
min. Earth dist.	4848 Dec 18 01:36	27°II49'50	48.45941 AU	retrograde	4856 Oct 03 09:21	6°☾17'40	
direct	4849 Mar 10 06:56	26°II50'52		opposition	4856 Dec 26 03:02	5°☾18'33	-14°-7'-14
				min. Earth dist.	4856 Dec 25 19:14	5°☾18'55	48.22694 AU
conjunction	4849 Jun 16 13:38	28°II16'04	-14°-36'-48	direct	4857 Mar 17 19:02	4°☾20'17	
minimum elong	4849 Jun 16 13:48	28°II16'05	14°36'49				
max. Earth dist.	4849 Jun 17 06:29	28°II17'02	50.38418 AU	conjunction	4857 Jun 24 04:48	5°☾45'35	-13°-29'-13
retrograde	4849 Sep 27 02:11	29°II44'35		minimum elong	4857 Jun 24 05:00	5°☾45'36	13°29'16
opposition	4849 Dec 19 21:23	28°II45'24	-15°-8'-35	max. Earth dist.	4857 Jun 24 13:24	5°☾46'05	50.14768 AU
min. Earth dist.	4849 Dec 19 06:41	28°II46'05	48.44267 AU	retrograde	4857 Oct 04 14:50	7°☾14'03	
direct	4850 Mar 11 11:43	27°II47'09		opposition	4857 Dec 27 07:14	6°☾14'57	-13°-57'-31
				min. Earth dist.	4857 Dec 26 23:47	6°☾15'18	48.18180 AU
conjunction	4850 Jun 17 18:25	29°II12'20	-14°-29'-10	direct	4858 Mar 19 00:16	5°☾16'40	
minimum elong	4850 Jun 17 18:35	29°II12'20	14°29'12				
max. Earth dist.	4850 Jun 18 09:08	29°II13'10	50.36650 AU	conjunction	4858 Jun 25 09:47	6°☾42'02	-13°-19'-46
	4850 Jul 24 21:34	0°☾		minimum elong	4858 Jun 25 09:58	6°☾42'03	13°19'46
retrograde	4850 Sep 28 05:10	0°☾40'47		max. Earth dist.	4858 Jun 25 16:16	6°☾42'24	50.10134 AU
	4850 Dec 04 07:01	30°RII		retrograde	4858 Oct 05 23:02	8°☾10'32	
min. Earth dist.	4850 Dec 20 11:42	29°II42'15	48.42180 AU	opposition	4858 Dec 28 11:39	7°☾11'26	-13°-47'-36
opposition	4850 Dec 21 01:38	29°II41'36	-15°00'-33	min. Earth dist.	4858 Dec 28 06:23	7°☾11'41	48.13158 AU
direct	4851 Mar 12 16:31	28°II43'20		direct	4859 Mar 20 02:11	6°☾13'07	
	4851 Jun 12 16:22	0°☾					
				conjunction	4859 Jun 26 15:02	7°☾38'32	-13°-10'-5

minimum elong	4859 Jun 26 15:14	7° \mathring{E} 38'33	13°10'08	opposition	4868 Jan 06 02:30	15° \mathring{E} 40'01	-12°-8'-23
max. Earth dist.	4859 Jun 26 20:59	7° \mathring{E} 38'52	50.04977 AU	min. Earth dist.	4868 Jan 06 05:46	15° \mathring{E} 39'52	47.47626 AU
retrograde	4859 Oct 07 03:42	9° \mathring{E} 07'03		direct	4868 Mar 27 19:59	14° \mathring{E} 41'12	
opposition	4859 Dec 29 15:56	8° \mathring{E} 07'56	-13°-37'-28				
min. Earth dist.	4859 Dec 29 11:35	8° \mathring{E} 08'09	48.07585 AU	conjunction	4868 Jul 04 13:51	16° \mathring{E} 07'25	-11°-33'-21
direct	4860 Mar 20 06:30	7° \mathring{E} 09'35		minimum elong	4868 Jul 04 14:03	16° \mathring{E} 07'26	11°33'23
				max. Earth dist.	4868 Jul 04 08:49	16° \mathring{E} 07'08	49.39010 AU
conjunction	4860 Jun 26 20:09	8° \mathring{E} 35'03	-13°00'-13	retrograde	4868 Oct 15 01:55	17° \mathring{E} 36'31	
minimum elong	4860 Jun 26 20:20	8° \mathring{E} 35'04	13°00'14	opposition	4869 Jan 06 07:04	16° \mathring{E} 37'04	-11°-56'-9
max. Earth dist.	4860 Jun 26 23:38	8° \mathring{E} 35'15	49.99277 AU	min. Earth dist.	4869 Jan 06 12:17	16° \mathring{E} 36'50	47.38670 AU
retrograde	4860 Oct 07 08:10	10° \mathring{E} 03'35		direct	4869 Mar 28 21:31	15° \mathring{E} 38'13	
opposition	4860 Dec 29 20:17	9° \mathring{E} 04'26	-13°-27'-8				
min. Earth dist.	4860 Dec 29 17:07	9° \mathring{E} 04'35	48.01476 AU	conjunction	4869 Jul 05 19:28	17° \mathring{E} 04'36	-11°-21'-26
direct	4861 Mar 21 10:12	8° \mathring{E} 06'01		minimum elong	4869 Jul 05 19:39	17° \mathring{E} 04'37	11°21'27
				max. Earth dist.	4869 Jul 05 14:13	17° \mathring{E} 04'19	49.30006 AU
conjunction	4861 Jun 28 01:25	9° \mathring{E} 31'33	-12°-50'-9	retrograde	4869 Oct 16 07:34	18° \mathring{E} 33'50	
minimum elong	4861 Jun 28 01:36	9° \mathring{E} 31'33	12°50'11	opposition	4870 Jan 07 11:28	17° \mathring{E} 34'23	-11°-43'-41
max. Earth dist.	4861 Jun 28 04:00	9° \mathring{E} 31'41	49.93041 AU	min. Earth dist.	4870 Jan 07 17:20	17° \mathring{E} 34'06	47.29305 AU
retrograde	4861 Oct 08 10:48	11° \mathring{E} 00'05		direct	4870 Mar 30 01:27	16° \mathring{E} 35'29	
opposition	4861 Dec 31 00:32	10° \mathring{E} 00'53	-13°-16'-36				
min. Earth dist.	4861 Dec 30 23:24	10° \mathring{E} 00'56	47.94859 AU	conjunction	4870 Jul 07 01:01	18° \mathring{E} 02'03	-11°-9'-18
direct	4862 Mar 22 16:45	9° \mathring{E} 02'24		minimum elong	4870 Jul 07 01:12	18° \mathring{E} 02'04	11°09'20
				max. Earth dist.	4870 Jul 06 17:31	18° \mathring{E} 01'38	49.20568 AU
conjunction	4862 Jun 29 06:35	10° \mathring{E} 27'59	-12°-39'-52	retrograde	4870 Oct 17 13:31	19° \mathring{E} 31'25	
minimum elong	4862 Jun 29 06:47	10° \mathring{E} 27'59	12°39'53	opposition	4871 Jan 08 16:07	18° \mathring{E} 31'56	-11°-31'00
max. Earth dist.	4862 Jun 29 08:03	10° \mathring{E} 28'04	49.86349 AU	min. Earth dist.	4871 Jan 08 23:15	18° \mathring{E} 31'36	47.19483 AU
retrograde	4862 Oct 09 15:05	11° \mathring{E} 56'33		direct	4871 Mar 31 04:40	17° \mathring{E} 32'59	
opposition	4863 Jan 01 04:46	10° \mathring{E} 57'18	-13°-5'-50				
min. Earth dist.	4863 Jan 01 03:40	10° \mathring{E} 57'21	47.87812 AU	conjunction	4871 Jul 08 06:41	18° \mathring{E} 59'44	-10°-56'-58
direct	4863 Mar 23 22:20	9° \mathring{E} 58'45		minimum elong	4871 Jul 08 06:53	18° \mathring{E} 59'44	10°56'58
				max. Earth dist.	4871 Jul 07 22:13	18° \mathring{E} 59'15	49.10628 AU
conjunction	4863 Jun 30 11:34	11° \mathring{E} 24'23	-12°-29'-22	retrograde	4871 Oct 18 16:36	20° \mathring{E} 29'14	
minimum elong	4863 Jun 30 11:44	11° \mathring{E} 24'24	12°29'24	opposition	4872 Jan 09 20:57	19° \mathring{E} 29'42	-11°-18'-5
max. Earth dist.	4863 Jun 30 11:14	11° \mathring{E} 24'22	49.79244 AU	min. Earth dist.	4872 Jan 10 06:01	19° \mathring{E} 29'16	47.09137 AU
retrograde	4863 Oct 10 22:18	12° \mathring{E} 53'00		direct	4872 Mar 31 11:52	18° \mathring{E} 30'40	
opposition	4864 Jan 02 09:11	11° \mathring{E} 53'42	-12°-54'-50				
min. Earth dist.	4864 Jan 02 09:56	11° \mathring{E} 53'40	47.80390 AU	conjunction	4872 Jul 08 12:34	19° \mathring{E} 57'35	-10°-44'-24
direct	4864 Mar 24 01:29	10° \mathring{E} 55'05		minimum elong	4872 Jul 08 12:45	19° \mathring{E} 57'36	10°44'27
				max. Earth dist.	4872 Jul 08 02:41	19° \mathring{E} 57'01	49.00178 AU
conjunction	4864 Jun 30 16:52	12° \mathring{E} 20'47	-12°-18'-38	retrograde	4872 Oct 18 21:03	21° \mathring{E} 27'13	
minimum elong	4864 Jun 30 17:04	12° \mathring{E} 20'48	12°18'40	opposition	4873 Jan 10 01:33	20° \mathring{E} 27'37	-11°-4'-58
max. Earth dist.	4864 Jun 30 16:40	12° \mathring{E} 20'47	49.71791 AU	min. Earth dist.	4873 Jan 10 11:00	20° \mathring{E} 27'11	46.98279 AU
retrograde	4864 Oct 11 03:42	13° \mathring{E} 49'27		direct	4873 Apr 01 18:09	19° \mathring{E} 28'30	
opposition	4865 Jan 02 13:22	12° \mathring{E} 50'07	-12°-43'-35				
min. Earth dist.	4865 Jan 02 14:35	12° \mathring{E} 50'03	47.72631 AU	conjunction	4873 Jul 09 18:24	20° \mathring{E} 55'34	-10°-31'-38
direct	4865 Mar 25 04:35	11° \mathring{E} 51'25		minimum elong	4873 Jul 09 18:36	20° \mathring{E} 55'35	10°31'40
				max. Earth dist.	4873 Jul 09 06:23	20° \mathring{E} 54'53	48.89217 AU
conjunction	4865 Jul 01 22:03	13° \mathring{E} 17'15	-12°-7'-40	retrograde	4873 Oct 20 04:30	22° \mathring{E} 25'21	
minimum elong	4865 Jul 01 22:14	13° \mathring{E} 17'15	12°07'42	opposition	4874 Jan 11 06:26	21° \mathring{E} 25'40	-10°-51'-37
max. Earth dist.	4865 Jul 01 19:52	13° \mathring{E} 17'07	49.64029 AU	min. Earth dist.	4874 Jan 11 18:02	21° \mathring{E} 25'07	46.86944 AU
retrograde	4865 Oct 12 09:44	14° \mathring{E} 45'58		direct	4874 Apr 02 22:19	20° \mathring{E} 26'26	
opposition	4866 Jan 03 17:43	13° \mathring{E} 46'36	-12°-32'-6				
min. Earth dist.	4866 Jan 03 19:38	13° \mathring{E} 46'31	47.64586 AU	conjunction	4874 Jul 11 00:14	21° \mathring{E} 53'39	-10°-18'-39
direct	4866 Mar 26 07:26	12° \mathring{E} 47'51		minimum elong	4874 Jul 11 00:24	21° \mathring{E} 53'40	10°18'41
				max. Earth dist.	4874 Jul 10 12:03	21° \mathring{E} 52'58	48.77808 AU
conjunction	4866 Jul 03 03:13	14° \mathring{E} 13'47	-11°-56'-28	retrograde	4874 Oct 21 11:45	23° \mathring{E} 23'34	
minimum elong	4866 Jul 03 03:25	14° \mathring{E} 13'48	11°56'30	opposition	4875 Jan 12 11:13	22° \mathring{E} 23'48	-10°-38'-1
max. Earth dist.	4866 Jul 03 00:40	14° \mathring{E} 13'39	49.55973 AU	min. Earth dist.	4875 Jan 12 23:20	22° \mathring{E} 23'13	46.75182 AU
retrograde	4866 Oct 13 11:46	15° \mathring{E} 42'37		direct	4875 Apr 04 01:31	21° \mathring{E} 24'26	
opposition	4867 Jan 04 22:11	14° \mathring{E} 43'13	-12°-20'-22				
min. Earth dist.	4867 Jan 05 01:28	14° \mathring{E} 43'04	47.56247 AU	conjunction	4875 Jul 12 06:03	22° \mathring{E} 51'51	-10°-5'-26
direct	4867 Mar 27 14:33	13° \mathring{E} 44'26		minimum elong	4875 Jul 12 06:15	22° \mathring{E} 51'51	10°05'27
				max. Earth dist.	4875 Jul 11 15:48	22° \mathring{E} 51'02	48.66012 AU
conjunction	4867 Jul 04 08:31	15° \mathring{E} 10'30	-11°-45'-2	retrograde	4875 Oct 22 19:44	24° \mathring{E} 21'53	
minimum elong	4867 Jul 04 08:42	15° \mathring{E} 10'30	11°45'03	opposition	4876 Jan 13 16:01	23° \mathring{E} 22'01	-10°-24'-11
max. Earth dist.	4867 Jul 04 05:15	15° \mathring{E} 10'19	49.47649 AU	min. Earth dist.	4876 Jan 14 05:05	23° \mathring{E} 21'23	46.63071 AU
retrograde	4867 Oct 14 16:49	16° \mathring{E} 39'27		direct	4876 Apr 04 03:58	22° \mathring{E} 22'32	

conjunction	4876 Jul 12 12:06	23° \mathring{S} 50'08	-9°-51'-58	direct	4884 Apr 12 00:31	0° \mathring{N} 15'25	
minimum elong	4876 Jul 12 12:17	23° \mathring{S} 50'08	9°52'00				
max. Earth dist.	4876 Jul 11 21:18	23° \mathring{S} 49'17	48.53870 AU	conjunction	4884 Jul 20 16:23	1° \mathring{N} 45'06	-7°-55'-34
retrograde	4876 Oct 22 22:31	25° \mathring{S} 20'19		minimum elong	4884 Jul 20 16:33	1° \mathring{N} 45'06	7°55'35
opposition	4877 Jan 13 20:59	24° \mathring{S} 20'21	-10°-10'-6	max. Earth dist.	4884 Jul 19 16:41	1° \mathring{N} 43'43	47.45516 AU
min. Earth dist.	4877 Jan 14 11:29	24° \mathring{S} 19'39	46.50634 AU	retrograde	4884 Oct 31 03:27	3° \mathring{N} 17'08	
direct	4877 Apr 05 11:01	23° \mathring{S} 20'45		opposition	4885 Jan 21 16:03	2° \mathring{N} 16'29	-8°-8'-15
				min. Earth dist.	4885 Jan 22 14:32	2° \mathring{N} 15'23	45.39668 AU
conjunction	4877 Jul 13 18:10	24° \mathring{S} 48'32	-9°-38'-16	direct	4885 Apr 13 05:26	1° \mathring{N} 15'59	
minimum elong	4877 Jul 13 18:21	24° \mathring{S} 48'33	9°38'18				
max. Earth dist.	4877 Jul 13 02:37	24° \mathring{S} 47'38	48.41440 AU	conjunction	4885 Jul 21 23:30	2° \mathring{N} 45'58	-7°-39'-57
retrograde	4877 Oct 24 01:51	26° \mathring{S} 18'54		minimum elong	4885 Jul 21 23:39	2° \mathring{N} 45'58	7°39'59
opposition	4878 Jan 15 01:50	25° \mathring{S} 18'50	-9°-55'-46	max. Earth dist.	4885 Jul 20 21:16	2° \mathring{N} 44'26	47.30033 AU
min. Earth dist.	4878 Jan 15 16:16	25° \mathring{S} 18'08	46.37924 AU	retrograde	4885 Nov 01 13:25	4° \mathring{N} 18'16	
direct	4878 Apr 06 18:31	24° \mathring{S} 19'07		opposition	4886 Jan 22 21:55	3° \mathring{N} 17'29	-7°-51'-55
max. Earth dist.	4878 Jul 14 07:01	25° \mathring{S} 46'08	48.28737 AU	min. Earth dist.	4886 Jan 23 21:52	3° \mathring{N} 16'19	45.23822 AU
				direct	4886 Apr 14 08:30	2° \mathring{N} 16'49	
conjunction	4878 Jul 15 00:16	25° \mathring{S} 47'07	-9°-24'-20	max. Earth dist.	4886 Jul 22 03:55	3° \mathring{N} 45'33	47.14089 AU
minimum elong	4878 Jul 15 00:26	25° \mathring{S} 47'08	9°24'21				
retrograde	4878 Oct 25 09:40	27° \mathring{S} 17'41		conjunction	4886 Jul 23 06:51	3° \mathring{N} 47'08	-7°-24'-7
opposition	4879 Jan 16 07:02	26° \mathring{S} 17'32	-9°-41'-10	minimum elong	4886 Jul 23 07:01	3° \mathring{N} 47'08	7°24'08
min. Earth dist.	4879 Jan 16 23:09	26° \mathring{S} 16'45	46.24958 AU	retrograde	4886 Nov 02 19:18	5° \mathring{N} 19'42	
direct	4879 Apr 07 22:40	25° \mathring{S} 17'42		opposition	4887 Jan 24 03:59	4° \mathring{N} 18'47	-7°-35'-19
				min. Earth dist.	4887 Jan 25 05:24	4° \mathring{N} 17'33	45.07543 AU
conjunction	4879 Jul 16 06:30	26° \mathring{S} 45'56	-9°-10'-8	direct	4887 Apr 15 15:24	3° \mathring{N} 17'58	
minimum elong	4879 Jul 16 06:42	26° \mathring{S} 45'57	9°10'10	max. Earth dist.	4887 Jul 23 10:07	4° \mathring{N} 46'56	46.97757 AU
max. Earth dist.	4879 Jul 15 13:26	26° \mathring{S} 44'57	48.15783 AU				
retrograde	4879 Oct 26 16:19	28° \mathring{S} 16'43		conjunction	4887 Jul 24 14:09	4° \mathring{N} 48'35	-7°-8'-2
opposition	4880 Jan 17 12:14	27° \mathring{S} 16'29	-9°-26'-18	minimum elong	4887 Jul 24 14:18	4° \mathring{N} 48'36	7°08'03
min. Earth dist.	4880 Jan 18 04:31	27° \mathring{S} 15'42	46.11718 AU	retrograde	4887 Nov 03 23:53	6° \mathring{N} 21'27	
direct	4880 Apr 08 03:10	26° \mathring{S} 16'33		opposition	4888 Jan 25 10:04	5° \mathring{N} 20'23	-7°-18'-28
				min. Earth dist.	4888 Jan 26 11:46	5° \mathring{N} 19'07	44.90901 AU
conjunction	4880 Jul 16 12:55	27° \mathring{S} 45'03	-8°-55'-41	direct	4888 Apr 16 00:09	4° \mathring{N} 19'23	
minimum elong	4880 Jul 16 13:05	27° \mathring{S} 45'04	8°55'43				
max. Earth dist.	4880 Jul 15 17:53	27° \mathring{S} 43'57	48.02546 AU	conjunction	4888 Jul 24 21:43	5° \mathring{N} 50'21	-6°-51'-42
retrograde	4880 Oct 27 00:55	29° \mathring{S} 16'03		minimum elong	4888 Jul 24 21:52	5° \mathring{N} 50'22	6°51'43
opposition	4881 Jan 17 17:27	28° \mathring{S} 15'45	-9°-11'-11	max. Earth dist.	4888 Jul 23 15:51	5° \mathring{N} 48'35	46.81064 AU
min. Earth dist.	4881 Jan 18 10:55	28° \mathring{S} 14'55	45.98183 AU	retrograde	4888 Nov 04 07:18	7° \mathring{N} 23'31	
direct	4881 Apr 09 06:01	27° \mathring{S} 15'43		opposition	4889 Jan 25 16:18	6° \mathring{N} 22'18	-7°-1'-22
				min. Earth dist.	4889 Jan 26 19:54	6° \mathring{N} 20'57	44.73938 AU
conjunction	4881 Jul 17 19:36	28° \mathring{S} 44'31	-8°-41'00	direct	4889 Apr 17 06:35	5° \mathring{N} 21'09	
minimum elong	4881 Jul 17 19:46	28° \mathring{S} 44'32	8°41'03	max. Earth dist.	4889 Jul 24 23:38	6° \mathring{N} 50'41	46.64078 AU
max. Earth dist.	4881 Jul 16 23:54	28° \mathring{S} 43'22	47.88961 AU				
	4881 Sep 19 11:26	0° \mathring{N}		conjunction	4889 Jul 26 05:29	6° \mathring{N} 52'27	-6°-35'-7
retrograde	4881 Oct 28 06:09	0° \mathring{N} 15'45		minimum elong	4889 Jul 26 05:37	6° \mathring{N} 52'28	6°35'09
	4881 Dec 06 07:44	30° \mathring{R} \mathring{S}		retrograde	4889 Nov 05 15:18	8° \mathring{N} 25'57	
opposition	4882 Jan 18 22:57	29° \mathring{S} 15'23	-8°-55'-49	opposition	4890 Jan 26 22:41	7° \mathring{N} 24'36	-6°-43'-59
min. Earth dist.	4882 Jan 19 18:05	29° \mathring{S} 14'28	45.84263 AU	min. Earth dist.	4890 Jan 28 02:17	7° \mathring{N} 23'14	44.56695 AU
direct	4882 Apr 10 12:44	28° \mathring{S} 15'16		direct	4890 Apr 18 11:56	6° \mathring{N} 23'15	
max. Earth dist.	4882 Jul 18 05:17	29° \mathring{S} 43'08	47.74972 AU	max. Earth dist.	4890 Jul 26 05:22	7° \mathring{N} 53'03	46.46829 AU
conjunction	4882 Jul 19 02:14	29° \mathring{S} 44'21	-8°-26'-5	conjunction	4890 Jul 27 13:03	7° \mathring{N} 54'56	-6°-18'-17
minimum elong	4882 Jul 19 02:24	29° \mathring{S} 44'21	8°26'06	minimum elong	4890 Jul 27 13:12	7° \mathring{N} 54'57	6°18'19
	4882 Jul 30 08:30	0° \mathring{N}		retrograde	4890 Nov 07 01:58	9° \mathring{N} 28'46	
retrograde	4882 Oct 29 11:41	1° \mathring{N} 15'51		opposition	4891 Jan 28 05:19	8° \mathring{N} 27'16	-6°-26'-19
opposition	4883 Jan 20 04:29	0° \mathring{N} 15'24	-8°-40'-12	min. Earth dist.	4891 Jan 29 10:01	8° \mathring{N} 25'51	44.39213 AU
min. Earth dist.	4883 Jan 20 23:58	0° \mathring{N} 14'27	45.69903 AU	direct	4891 Apr 19 15:40	7° \mathring{N} 25'46	
	4883 Feb 02 15:06	30° \mathring{R} \mathring{S}					
direct	4883 Apr 11 19:14	29° \mathring{S} 15'10		conjunction	4891 Jul 28 21:07	8° \mathring{N} 57'51	-6°-1'-11
	4883 Jun 17 02:31	0° \mathring{N}		minimum elong	4891 Jul 28 21:14	8° \mathring{N} 57'51	6°01'13
max. Earth dist.	4883 Jul 19 10:02	0° \mathring{N} 43'12	47.60496 AU	max. Earth dist.	4891 Jul 27 13:06	8° \mathring{N} 55'56	46.29331 AU
				retrograde	4891 Nov 08 09:51	10° \mathring{N} 32'01	
conjunction	4883 Jul 20 09:10	0° \mathring{N} 44'33	-8°-10'-56	opposition	4892 Jan 29 12:01	9° \mathring{N} 30'24	-6°-8'-23
minimum elong	4883 Jul 20 09:20	0° \mathring{N} 44'33	8°10'59	min. Earth dist.	4892 Jan 30 17:48	9° \mathring{N} 28'55	44.21478 AU
retrograde	4883 Oct 30 19:19	2° \mathring{N} 16'20		direct	4892 Apr 19 22:45	8° \mathring{N} 28'44	
opposition	4884 Jan 21 10:14	1° \mathring{N} 15'47	-8°-24'-21	max. Earth dist.	4892 Jul 27 20:12	9° \mathring{N} 59'15	46.11587 AU
min. Earth dist.	4884 Jan 22 08:05	1° \mathring{N} 14'43	45.55044 AU				

conjunction	4892 Jul 29 05:18	10°♊01'14	-5°-43'-50	max. Earth dist.	4900 Aug 06 10:48	18°♊43'31	44.55378 AU
minimum elong	4892 Jul 29 05:27	10°♊01'15	5°43'52				
retrograde	4892 Nov 08 17:52	11°♊35'47		conjunction	4900 Aug 08 07:06	18°♊46'16	-3°-15'-57
opposition	4893 Jan 29 18:50	10°♊34'01	-5°-50'-11	minimum elong	4900 Aug 08 07:11	18°♊46'16	3°15'59
min. Earth dist.	4893 Jan 31 00:50	10°♊32'32	44.03474 AU	retrograde	4900 Nov 18 19:05	20°♊24'11	
direct	4893 Apr 21 06:15	9°♊32'12		opposition	4901 Feb 08 08:57	19°♊20'54	-3°-14'-54
max. Earth dist.	4893 Jul 29 02:56	11°♊03'02	45.93521 AU	min. Earth dist.	4901 Feb 10 00:56	19°♊18'51	42.45007 AU
				direct	4901 Apr 30 18:38	18°♊17'16	
conjunction	4893 Jul 30 13:43	11°♊05'08	-5°-26'-13	max. Earth dist.	4901 Aug 07 20:54	19°♊51'14	44.34233 AU
minimum elong	4893 Jul 30 13:50	11°♊05'09	5°26'14				
retrograde	4893 Nov 10 00:44	12°♊40'05		conjunction	4901 Aug 09 17:17	19°♊54'00	-2°-56'-20
opposition	4894 Jan 31 01:56	11°♊38'12	-5°-31'-42	minimum elong	4901 Aug 09 17:22	19°♊54'00	2°56'21
min. Earth dist.	4894 Feb 01 10:05	11°♊36'36	43.85130 AU	retrograde	4901 Nov 20 06:01	21°♊32'24	
direct	4894 Apr 22 14:08	10°♊36'12		opposition	4902 Feb 09 17:37	20°♊28'54	-2°-54'-15
max. Earth dist.	4894 Jul 30 11:19	12°♊07'27	45.75091 AU	min. Earth dist.	4902 Feb 11 10:11	20°♊26'49	42.23696 AU
				direct	4902 May 02 02:34	19°♊25'01	
conjunction	4894 Jul 31 22:28	12°♊09'35	-5°-8'-21	max. Earth dist.	4902 Aug 09 05:56	20°♊59'28	44.12902 AU
minimum elong	4894 Jul 31 22:35	12°♊09'35	5°08'23				
retrograde	4894 Nov 11 08:52	13°♊44'57		conjunction	4902 Aug 11 03:35	21°♊02'19	-2°-36'-27
opposition	4895 Feb 01 09:10	12°♊42'54	-5°-12'-57	minimum elong	4902 Aug 11 03:39	21°♊02'19	2°36'28
min. Earth dist.	4895 Feb 02 17:42	12°♊41'16	43.66385 AU	retrograde	4902 Nov 21 18:38	22°♊41'13	
direct	4895 Apr 23 21:37	11°♊40'43		opposition	4903 Feb 11 02:28	21°♊37'31	-2°-33'-19
max. Earth dist.	4895 Jul 31 17:33	13°♊12'16	45.56224 AU	min. Earth dist.	4903 Feb 12 19:15	21°♊35'25	42.02224 AU
				direct	4903 May 03 10:28	20°♊33'23	
conjunction	4895 Aug 02 07:17	13°♊14'33	-4°-50'-15	max. Earth dist.	4903 Aug 10 15:34	22°♊08'21	43.91391 AU
minimum elong	4895 Aug 02 07:24	13°♊14'33	4°50'15				
retrograde	4895 Nov 12 21:21	14°♊50'19		conjunction	4903 Aug 12 14:14	22°♊11'17	-2°-16'-18
opposition	4896 Feb 02 16:44	13°♊48'07	-4°-53'-57	minimum elong	4903 Aug 12 14:17	22°♊11'17	2°16'19
min. Earth dist.	4896 Feb 04 03:03	13°♊46'24	43.47189 AU	retrograde	4903 Nov 23 03:58	23°♊50'44	
direct	4896 Apr 24 01:20	12°♊45'43		opposition	4904 Feb 12 11:46	22°♊46'49	-2°-12'-7
max. Earth dist.	4896 Aug 01 02:07	14°♊17'40	45.36877 AU	min. Earth dist.	4904 Feb 14 06:05	22°♊44'38	41.80579 AU
				direct	4904 May 03 20:22	21°♊42'28	
conjunction	4896 Aug 02 16:38	14°♊20'01	-4°-31'-53	max. Earth dist.	4904 Aug 11 02:27	23°♊18'00	43.69714 AU
minimum elong	4896 Aug 02 16:44	14°♊20'01	4°31'55				
	4896 Aug 30 19:58	15°♊		conjunction	4904 Aug 13 01:17	23°♊20'58	-1°-55'-53
retrograde	4896 Nov 13 06:45	15°♊56'11		minimum elong	4904 Aug 13 01:19	23°♊20'59	1°55'55
	4897 Jan 28 20:34	15°♊		retrograde	4904 Nov 23 13:05	25°♊01'01	
opposition	4897 Feb 03 00:24	14°♊53'47	-4°-34'-41	opposition	4905 Feb 12 21:03	23°♊56'54	-1°-50'-38
min. Earth dist.	4897 Feb 04 12:06	14°♊52'00	43.27512 AU	min. Earth dist.	4905 Feb 14 15:18	23°♊54'42	41.58753 AU
direct	4897 Apr 25 08:37	13°♊51'10		direct	4905 May 05 06:56	22°♊52'19	
	4897 Jul 17 05:15	15°♊		max. Earth dist.	4905 Aug 12 11:37	24°♊28'22	43.47820 AU
max. Earth dist.	4897 Aug 02 09:49	15°♊23'28	45.17078 AU				
				conjunction	4905 Aug 14 12:31	24°♊31'29	-1°-35'-13
conjunction	4897 Aug 04 02:00	15°♊25'55	-4°-13'-17	minimum elong	4905 Aug 14 12:34	24°♊31'29	1°35'15
minimum elong	4897 Aug 04 02:06	15°♊25'56	4°13'18	retrograde	4905 Nov 25 02:14	26°♊12'08	
retrograde	4897 Nov 14 15:42	17°♊02'30		opposition	4906 Feb 14 06:52	25°♊07'50	-1°-28'-51
opposition	4898 Feb 04 08:14	15°♊59'54	-4°-15'-9	min. Earth dist.	4906 Feb 16 02:52	25°♊05'32	41.36699 AU
min. Earth dist.	4898 Feb 05 20:36	15°♊58'04	43.07408 AU	direct	4906 May 06 13:23	24°♊03'01	
	4898 Apr 10 19:04	15°♊		max. Earth dist.	4906 Aug 13 23:07	25°♊39'43	43.25650 AU
direct	4898 Apr 26 17:38	14°♊57'02					
	4898 May 12 16:29	15°♊		conjunction	4906 Aug 16 00:06	25°♊42'51	-1°-14'-18
max. Earth dist.	4898 Aug 03 17:27	16°♊29'41	44.96849 AU	minimum elong	4906 Aug 16 00:08	25°♊42'51	1°14'19
				retrograde	4906 Nov 26 14:19	27°♊24'08	
conjunction	4898 Aug 05 11:23	16°♊32'16	-3°-54'-26	opposition	4907 Feb 15 16:56	26°♊19'38	-1°-6'-49
minimum elong	4898 Aug 05 11:29	16°♊32'16	3°54'28	min. Earth dist.	4907 Feb 17 13:38	26°♊17'17	41.14334 AU
retrograde	4898 Nov 15 23:22	18°♊09'16		direct	4907 May 07 21:54	25°♊14'34	
opposition	4899 Feb 05 16:24	17°♊06'26	-3°-55'-20	max. Earth dist.	4907 Aug 15 09:06	26°♊51'49	43.03144 AU
min. Earth dist.	4899 Feb 07 06:45	17°♊04'30	42.86912 AU				
direct	4899 Apr 28 03:21	16°♊03'20		conjunction	4907 Aug 17 12:04	26°♊55'06	0°-53'-8
max. Earth dist.	4899 Aug 05 03:01	17°♊36'26	44.76267 AU	minimum elong	4907 Aug 17 12:05	26°♊55'06	0°53'10
				retrograde	4907 Nov 28 05:22	28°♊37'00	
conjunction	4899 Aug 06 21:11	17°♊39'02	-3°-35'-19	opposition	4908 Feb 17 03:13	27°♊32'17	0°-44'-30
minimum elong	4899 Aug 06 21:17	17°♊39'02	3°35'20	min. Earth dist.	4908 Feb 19 01:02	27°♊29'52	40.91620 AU
retrograde	4899 Nov 17 07:30	19°♊16'29		direct	4908 May 08 06:36	26°♊26'56	
opposition	4900 Feb 07 00:29	18°♊13'26	-3°-35'-15	max. Earth dist.	4908 Aug 15 20:08	28°♊04'47	42.80245 AU
min. Earth dist.	4900 Feb 08 14:52	18°♊11'28	42.66092 AU				
direct	4900 Apr 29 12:24	17°♊10'03		conjunction	4908 Aug 18 00:33	28°♊08'11	0°-31'-44

minimum elong	4908 Aug 18 00:34	28°08'11	0°31'45	min. Earth dist.	4916 Feb 29 07:14	7°03'39.34	38.99727 AU
retrograde	4908 Nov 28 18:03	29°05'04.3		direct	4916 May 18 04:43	6°03'34.30	
opposition	4909 Feb 17 14:00	28°04'45.45	0°-21'-55	max. Earth dist.	4916 Aug 26 03:59	8°03'17.53	40.87396 AU
min. Earth dist.	4909 Feb 19 13:39	28°04'31.14	40.68515 AU				
direct	4909 May 09 18:48	27°04'40.07		conjunction	4916 Aug 28 15:32	8°03'21.57	2°28'09
max. Earth dist.	4909 Aug 17 07:56	29°04'18.36	42.56975 AU	minimum elong	4916 Aug 28 15:27	8°03'21.56	2°28'09
				retrograde	4916 Dec 09 08:29	10°03'10.12	
conjunction	4909 Aug 19 13:10	29°04'22.04	0°-10'-6	opposition	4917 Feb 27 15:13	9°03'02.52	2°48'05
minimum elong	4909 Aug 19 13:10	29°04'22.04	0°10'07	min. Earth dist.	4917 Mar 01 20:26	8°03'59.56	38.75142 AU
behind sun begin	4909 Aug 19 08:00	29°04'21.45		direct	4917 May 19 18:32	7°03'54.32	
behind sun end	4909 Aug 19 18:20	29°04'22.23		max. Earth dist.	4917 Aug 27 17:43	9°03'38.40	40.62698 AU
	4909 Sep 13 07:52	0°03'					
retrograde	4909 Nov 30 05:57	1°03'05.15		conjunction	4917 Aug 30 07:03	9°03'42.53	2°51'38
asc. node	4910 Feb 04 12:15	0°03'18.18		minimum elong	4917 Aug 30 06:58	9°03'42.53	2°51'37
opposition	4910 Feb 19 00:54	0°03'00.01	0°00'55	retrograde	4917 Dec 11 01:11	11°03'32.00	
	4910 Feb 19 01:09	30°04'04		opposition	4918 Mar 01 05:10	10°03'24.23	3°12'56
min. Earth dist.	4910 Feb 21 00:42	29°04'57.28	40.45055 AU	min. Earth dist.	4918 Mar 03 11:46	10°03'21.21	38.50452 AU
direct	4910 May 11 07:31	28°04'54.04		direct	4918 May 21 05:33	9°03'15.43	
	4910 Jul 28 05:40	0°03'		max. Earth dist.	4918 Aug 29 09:49	11°03'00.46	40.37842 AU
max. Earth dist.	4910 Aug 18 18:43	0°03'33.06	42.33354 AU				
				conjunction	4918 Aug 31 23:20	11°03'05.01	3°15'18
conjunction	4910 Aug 21 02:08	0°03'36.44	0°11'53	minimum elong	4918 Aug 31 23:14	11°03'05.01	3°15'18
minimum elong	4910 Aug 21 02:07	0°03'36.44	0°11'53	retrograde	4918 Dec 12 18:15	12°03'55.01	
behind sun begin	4910 Aug 20 21:41	0°03'36.28		opposition	4919 Mar 02 19:33	11°03'47.07	3°38'00
behind sun end	4910 Aug 21 06:34	0°03'37.00		min. Earth dist.	4919 Mar 05 03:04	11°03'44.01	38.25580 AU
retrograde	4910 Dec 01 17:34	2°03'20.35		direct	4919 May 22 18:20	10°03'38.07	
opposition	4911 Feb 20 12:14	1°03'15.03	0°24'02	max. Earth dist.	4919 Aug 31 00:56	12°03'23.59	40.12781 AU
min. Earth dist.	4911 Feb 22 14:02	1°03'12.23	40.21289 AU				
direct	4911 May 12 17:58	0°03'08.47		conjunction	4919 Sep 02 16:00	12°03'28.23	3°39'09
max. Earth dist.	4911 Aug 20 08:03	1°03'48.30	42.09444 AU	minimum elong	4919 Sep 02 15:54	12°03'28.23	3°39'09
				retrograde	4919 Dec 14 13:50	14°03'19.17	
conjunction	4911 Aug 22 15:30	1°03'52.10	0°34'00	opposition	4920 Mar 03 10:25	13°03'11.04	4°03'16
minimum elong	4911 Aug 22 15:29	1°03'52.10	0°33'59	min. Earth dist.	4920 Mar 05 18:31	13°03'07.56	38.00484 AU
retrograde	4911 Dec 03 05:48	3°03'36.41		direct	4920 May 23 07:29	12°03'01.42	
opposition	4912 Feb 21 23:49	2°03'30.52	0°47'25	max. Earth dist.	4920 Aug 31 16:47	13°03'48.27	39.87444 AU
min. Earth dist.	4912 Feb 24 01:55	2°03'28.10	39.97260 AU				
direct	4912 May 13 05:09	1°03'24.15		conjunction	4920 Sep 03 09:21	13°03'52.59	4°03'11
max. Earth dist.	4912 Aug 20 19:42	3°03'44.34	41.85297 AU	minimum elong	4920 Sep 03 09:13	13°03'52.59	4°03'12
				retrograde	4920 Dec 15 07:14	15°03'44.48	
conjunction	4912 Aug 23 05:08	3°03'08.23	0°56'23	opposition	4921 Mar 05 01:51	14°03'36.16	4°28'44
minimum elong	4912 Aug 23 05:07	3°03'08.23	0°56'23	min. Earth dist.	4921 Mar 07 11:49	14°03'32.59	37.75122 AU
retrograde	4912 Dec 03 22:04	4°03'53.36		direct	4921 May 24 23:15	13°03'26.31	
opposition	4913 Feb 22 11:38	3°03'47.28	1°11'03	max. Earth dist.	4921 Sep 02 10:09	15°03'14.12	39.61857 AU
min. Earth dist.	4913 Feb 24 14:45	3°03'44.42	39.73043 AU				
direct	4913 May 14 13:34	2°03'40.30		conjunction	4921 Sep 05 03:07	15°03'18.49	4°27'24
max. Earth dist.	4913 Aug 22 09:25	4°03'21.33	41.60965 AU	minimum elong	4921 Sep 05 02:59	15°03'18.48	4°27'24
				retrograde	4921 Dec 17 00:44	17°03'11.33	
conjunction	4913 Aug 24 19:13	4°03'25.25	1°18'59	opposition	4922 Mar 06 17:41	16°03'02.40	4°54'24
minimum elong	4913 Aug 24 19:11	4°03'25.24	1°18'59	min. Earth dist.	4922 Mar 09 03:39	15°03'59.22	37.49528 AU
retrograde	4913 Dec 05 12:29	6°03'11.20		direct	4922 May 26 16:38	14°03'52.32	
opposition	4914 Feb 24 00:02	5°03'04.54	1°34'57	max. Earth dist.	4922 Sep 04 02:01	16°03'41.03	39.36037 AU
min. Earth dist.	4914 Feb 26 04:06	5°03'02.04	39.48680 AU				
direct	4914 May 16 01:06	3°03'57.35		conjunction	4922 Sep 06 21:09	16°03'45.52	4°51'46
max. Earth dist.	4914 Aug 23 23:05	5°03'39.22	41.36525 AU	minimum elong	4922 Sep 06 21:00	16°03'45.51	4°51'46
				retrograde	4922 Dec 18 18:58	18°03'39.33	
conjunction	4914 Aug 26 09:24	5°03'43.18	1°41'50	opposition	4923 Mar 08 10:05	17°03'30.18	5°20'15
minimum elong	4914 Aug 26 09:21	5°03'43.17	1°41'50	min. Earth dist.	4923 Mar 10 21:53	17°03'26.53	37.23740 AU
retrograde	4914 Dec 07 03:48	7°03'29.57		direct	4923 May 28 07:02	16°03'19.45	
opposition	4915 Feb 25 12:40	6°03'23.13	1°59'05	max. Earth dist.	4923 Sep 05 20:57	18°03'09.18	39.10036 AU
min. Earth dist.	4915 Feb 27 16:35	6°03'20.23	39.24237 AU				
direct	4915 May 17 15:25	5°03'15.33		conjunction	4923 Sep 08 15:59	18°03'14.08	5°16'16
max. Earth dist.	4915 Aug 25 12:23	6°03'58.03	41.11993 AU	minimum elong	4923 Sep 08 15:49	18°03'14.07	5°16'16
				retrograde	4923 Dec 20 12:17	20°03'08.48	
conjunction	4915 Aug 28 00:12	7°03'02.07	2°04'53	opposition	4924 Mar 09 02:46	18°03'59.11	5°46'15
minimum elong	4915 Aug 28 00:08	7°03'02.06	2°04'52	min. Earth dist.	4924 Mar 11 14:46	18°03'55.43	36.97808 AU
retrograde	4915 Dec 08 18:34	8°03'49.33		direct	4924 May 28 23:39	17°03'48.12	
opposition	4916 Feb 27 01:45	7°03'42.30	2°23'28	max. Earth dist.	4924 Sep 06 14:28	19°03'38.39	38.83921 AU

conjunction	4924 Sep 09 11:08	19° 44 43'39	5°40'54	conjunction	4932 Sep 22 18:05	2° 43 32'05	8°59'28
minimum elong	4924 Sep 09 10:57	19° 44 43'38	5°40'54	minimum elong	4932 Sep 22 17:47	2° 43 32'04	8°59'27
retrograde	4924 Dec 21 09:33	21° 44 39'19		retrograde	4933 Jan 03 21:39	4° 43 36'52	
opposition	4925 Mar 10 20:04	20° 44 29'19	6°12'23	opposition	4933 Mar 23 12:04	3° 43 23'49	9°43'22
min. Earth dist.	4925 Mar 13 08:51	20° 44 25'48	36.71814 AU	min. Earth dist.	4933 Mar 26 04:51	3° 43 19'52	34.66366 AU
direct	4925 May 30 14:10	19° 44 17'54		direct	4933 Jun 11 21:12	2° 43 08'54	
max. Earth dist.	4925 Sep 08 09:59	21° 44 09'25	38.57746 AU	max. Earth dist.	4933 Sep 21 18:11	4° 43 09'51	36.50895 AU
conjunction	4925 Sep 11 06:49	21° 44 14'28	6°05'38	conjunction	4933 Sep 24 18:52	4° 43 15'35	9°24'06
minimum elong	4925 Sep 11 06:38	21° 44 14'27	6°05'38	minimum elong	4933 Sep 24 18:34	4° 43 15'34	9°24'07
retrograde	4925 Dec 23 06:08	23° 44 11'09		retrograde	4934 Jan 06 00:53	6° 43 21'35	
opposition	4926 Mar 12 14:01	22° 44 00'46	6°38'38	opposition	4934 Mar 25 11:03	5° 43 08'07	10°09'35
min. Earth dist.	4926 Mar 15 03:38	21° 44 57'10	36.45810 AU	min. Earth dist.	4934 Mar 28 03:28	5° 43 04'10	34.40913 AU
direct	4926 Jun 01 06:55	20° 44 48'54		direct	4934 Jun 13 21:24	3° 43 52'43	
max. Earth dist.	4926 Sep 10 05:47	22° 44 41'30	38.31608 AU	max. Earth dist.	4934 Sep 23 18:28	5° 43 54'53	36.25204 AU
conjunction	4926 Sep 13 03:00	22° 44 46'37	6°30'26	conjunction	4934 Sep 26 20:31	6° 43 00'47	9°48'36
minimum elong	4926 Sep 13 02:48	22° 44 46'36	6°30'26	minimum elong	4934 Sep 26 20:12	6° 43 00'45	9°48'36
retrograde	4926 Dec 25 04:19	24° 44 44'21		retrograde	4935 Jan 08 04:16	8° 43 08'01	
opposition	4927 Mar 14 08:16	23° 44 33'34	7°04'59	opposition	4935 Mar 27 10:45	6° 43 54'07	10°35'39
min. Earth dist.	4927 Mar 16 21:28	23° 44 29'59	36.19886 AU	min. Earth dist.	4935 Mar 30 04:35	6° 43 50'03	34.15519 AU
direct	4927 Jun 03 01:16	22° 44 21'16		direct	4935 Jun 15 20:52	5° 43 38'13	
max. Earth dist.	4927 Sep 12 01:34	24° 44 14'56	38.05543 AU	max. Earth dist.	4935 Sep 25 21:30	7° 43 41'45	35.99598 AU
conjunction	4927 Sep 14 23:53	24° 44 20'10	6°55'17	conjunction	4935 Sep 28 22:56	7° 43 47'40	10°12'55
minimum elong	4927 Sep 14 23:40	24° 44 20'09	6°55'18	minimum elong	4935 Sep 28 22:36	7° 43 47'38	10°12'56
retrograde	4927 Dec 27 01:42	26° 44 19'00		retrograde	4936 Jan 10 06:29	9° 43 56'10	
opposition	4928 Mar 15 03:23	25° 44 07'50	7°31'23	opposition	4936 Mar 28 11:08	8° 43 41'49	11°01'32
min. Earth dist.	4928 Mar 17 17:48	25° 44 04'09	35.94068 AU	min. Earth dist.	4936 Mar 31 04:23	8° 43 37'45	33.90237 AU
direct	4928 Jun 03 20:33	23° 44 55'07		direct	4936 Jun 16 22:13	7° 43 25'25	
max. Earth dist.	4928 Sep 12 23:47	25° 44 49'59	37.79600 AU	max. Earth dist.	4936 Sep 26 23:09	9° 43 30'10	35.74126 AU
conjunction	4928 Sep 15 21:24	25° 44 55'14	7°20'10	conjunction	4936 Sep 30 01:52	9° 43 36'15	10°37'01
minimum elong	4928 Sep 15 21:09	25° 44 55'13	7°20'10	minimum elong	4936 Sep 30 01:32	9° 43 36'13	10°37'01
retrograde	4928 Dec 27 23:09	27° 44 55'11		retrograde	4937 Jan 11 09:24	11° 43 46'02	
opposition	4929 Mar 16 22:55	26° 44 43'40	7°57'49	opposition	4937 Mar 30 12:16	10° 43 31'14	11°27'09
min. Earth dist.	4929 Mar 19 12:42	26° 44 39'59	35.68380 AU	min. Earth dist.	4937 Apr 02 06:20	10° 43 27'05	33.65149 AU
direct	4929 Jun 05 16:59	25° 44 30'31		direct	4937 Jun 18 21:20	9° 43 14'19	
max. Earth dist.	4929 Sep 14 20:20	27° 44 26'29	37.53774 AU	max. Earth dist.	4937 Sep 29 03:57	11° 43 20'31	35.48874 AU
conjunction	4929 Sep 17 19:27	27° 44 31'54	7°45'03	conjunction	4937 Oct 02 05:40	11° 43 26'34	11°00'50
minimum elong	4929 Sep 17 19:12	27° 44 31'53	7°45'04	minimum elong	4937 Oct 02 05:19	11° 43 26'33	11°00'51
retrograde	4929 Dec 29 21:57	29° 44 33'01		retrograde	4938 Jan 13 11:38	13° 43 37'39	
opposition	4930 Mar 18 19:11	28° 44 21'08	8°24'15	opposition	4938 Apr 01 14:12	12° 43 22'24	11°52'28
min. Earth dist.	4930 Mar 21 10:06	28° 44 17'22	35.42819 AU	min. Earth dist.	4938 Apr 04 07:59	12° 43 18'15	33.40324 AU
direct	4930 Jun 07 10:22	27° 44 07'34		direct	4938 Jun 20 22:04	11° 43 04'59	
max. Earth dist.	4930 Sep 16 19:37	29° 44 04'49	37.28032 AU	max. Earth dist.	4938 Oct 01 07:38	13° 43 12'32	35.23932 AU
conjunction	4930 Sep 19 18:12	29° 44 10'14	8°09'55	conjunction	4938 Oct 04 09:52	13° 43 18'41	11°24'18
minimum elong	4930 Sep 19 17:57	29° 44 10'13	8°09'54	minimum elong	4938 Oct 04 09:31	13° 43 18'39	11°24'18
retrograde	4930 Oct 17 12:15	0° 43		retrograde	4939 Jan 15 17:39	15° 43 31'06	
opposition	4930 Dec 31 19:22	1° 43 12'34		opposition	4939 Apr 03 16:48	14° 43 15'24	12°17'25
opposition	4931 Mar 20 16:08	0° 43 00'19	8°50'40	min. Earth dist.	4939 Apr 06 10:08	14° 43 11'15	33.15855 AU
min. Earth dist.	4931 Mar 20 21:15	30° 43		direct	4939 Jun 22 22:05	12° 43 57'29	
direct	4931 Mar 23 07:15	29° 43 56'30	35.17315 AU	max. Earth dist.	4939 Oct 03 13:34	15° 43 06'31	34.99356 AU
max. Earth dist.	4931 Jun 09 06:04	28° 43 46'19		conjunction	4939 Oct 06 15:09	15° 43 12'40	11°47'22
max. Earth dist.	4931 Aug 24 20:59	0° 43		minimum elong	4939 Oct 06 14:48	15° 43 12'38	11°47'22
max. Earth dist.	4931 Sep 18 17:48	0° 43 44'44	37.02325 AU	retrograde	4940 Jan 17 22:39	17° 43 26'27	
conjunction	4931 Sep 21 17:42	0° 43 50'18	8°34'43	opposition	4940 Apr 04 20:18	16° 43 10'19	12°41'55
minimum elong	4931 Sep 21 17:26	0° 43 50'17	8°34'44	min. Earth dist.	4940 Apr 07 13:52	16° 43 06'07	32.91791 AU
retrograde	4932 Jan 02 21:03	2° 43 53'50		direct	4940 Jun 24 00:10	14° 43 51'56	
opposition	4932 Mar 21 13:36	1° 43 41'12	9°17'03	max. Earth dist.	4940 Oct 04 20:10	17° 43 02'27	34.75232 AU
min. Earth dist.	4932 Mar 24 05:11	1° 43 37'21	34.91844 AU	conjunction	4940 Oct 07 21:06	17° 43 08'37	12°09'58
direct	4932 Jun 10 00:53	0° 43 26'45		minimum elong	4940 Oct 07 20:44	17° 43 08'35	12°09'57
max. Earth dist.	4932 Sep 19 17:42	2° 43 26'26	36.76606 AU	retrograde	4941 Jan 19 07:19	19° 43 23'47	

opposition	4941 Apr 07 00:33	18° 0 07'16	13°05'55	opposition	4949 Apr 23 18:21	5° 0 00'28	15°52'11
min. Earth dist.	4941 Apr 09 16:49	18° 0 03'07	32.68195 AU	min. Earth dist.	4949 Apr 26 08:21	4° 0 56'16	30.94835 AU
direct	4941 Jun 26 04:50	16° 0 48'25		direct	4949 Jul 12 11:35	3° 0 38'08	
max. Earth dist.	4941 Oct 07 02:50	19° 0 00'27	34.51564 AU	max. Earth dist.	4949 Oct 24 20:37	6° 0 02'21	32.77727 AU
conjunction	4941 Oct 10 03:45	19° 0 06'40	12°32'02	conjunction	4949 Oct 27 16:11	6° 0 08'35	15°02'52
minimum elong	4941 Oct 10 03:23	19° 0 06'38	12°32'03	minimum elong	4949 Oct 27 15:52	6° 0 08'33	15°02'53
retrograde	4942 Jan 21 15:33	21° 0 23'15		retrograde	4950 Feb 08 08:57	8° 0 36'12	
opposition	4942 Apr 09 05:46	20° 0 06'20	13°29'20	opposition	4950 Apr 26 06:21	7° 0 16'14	16°08'40
min. Earth dist.	4942 Apr 11 22:41	20° 0 02'08	32.45062 AU	min. Earth dist.	4950 Apr 28 18:28	7° 0 12'09	30.75363 AU
direct	4942 Jun 28 08:37	18° 0 47'04		direct	4950 Jul 15 01:04	5° 0 53'28	
max. Earth dist.	4942 Oct 09 11:50	21° 0 00'43	34.28360 AU	max. Earth dist.	4950 Oct 27 11:25	8° 0 19'07	32.58343 AU
conjunction	4942 Oct 12 11:24	21° 0 06'53	12°53'32	conjunction	4950 Oct 30 06:14	8° 0 25'19	15°17'27
minimum elong	4942 Oct 12 11:02	21° 0 06'51	12°53'32	minimum elong	4950 Oct 30 05:55	8° 0 25'17	15°17'27
retrograde	4943 Jan 24 00:24	23° 0 24'54		retrograde	4951 Feb 10 23:15	10° 0 54'12	
opposition	4943 Apr 11 11:36	22° 0 07'37	13°52'08	opposition	4951 Apr 28 19:12	9° 0 33'50	16°23'54
min. Earth dist.	4943 Apr 14 03:16	22° 0 03'28	32.22368 AU	min. Earth dist.	4951 May 01 07:10	9° 0 29'44	30.56593 AU
direct	4943 Jun 30 14:41	20° 0 47'56		direct	4951 Jul 17 12:55	8° 0 10'39	
max. Earth dist.	4943 Oct 11 19:36	23° 0 03'01	34.05570 AU	max. Earth dist.	4951 Oct 30 04:35	10° 0 37'50	32.39727 AU
conjunction	4943 Oct 14 19:55	23° 0 09'19	13°14'24	conjunction	4951 Nov 01 21:02	10° 0 43'52	15°30'48
minimum elong	4943 Oct 14 19:33	23° 0 09'18	13°14'25	minimum elong	4951 Nov 01 20:45	10° 0 43'51	15°30'49
retrograde	4944 Jan 26 11:03	25° 0 28'46		retrograde	4952 Feb 13 15:02	13° 0 13'59	
opposition	4944 Apr 12 18:33	24° 0 11'08	14°14'14	opposition	4952 Apr 30 08:56	11° 0 53'15	16°37'47
min. Earth dist.	4944 Apr 15 10:46	24° 0 06'55	32.00079 AU	min. Earth dist.	4952 May 02 18:35	11° 0 49'18	30.38602 AU
direct	4944 Jul 01 19:39	22° 0 51'01		direct	4952 Jul 19 03:18	10° 0 29'42	
max. Earth dist.	4944 Oct 13 06:35	25° 0 07'45	33.83168 AU	max. Earth dist.	4952 Oct 31 20:39	12° 0 58'13	32.21943 AU
conjunction	4944 Oct 16 05:21	25° 0 13'59	13°34'35	conjunction	4952 Nov 03 12:21	13° 0 04'14	15°42'50
minimum elong	4944 Oct 16 04:59	25° 0 13'57	13°34'35	minimum elong	4952 Nov 03 12:05	13° 0 04'13	15°42'50
retrograde	4945 Jan 27 20:31	27° 0 34'51		retrograde	4952 Dec 31 06:41	15° 0 00'00	
opposition	4945 Apr 15 02:24	26° 0 16'50	14°35'37	opposition	4953 Feb 15 08:31	15° 0 35'33	
min. Earth dist.	4945 Apr 17 17:51	26° 0 12'38	31.78162 AU	opposition	4953 Apr 03 19:07	15° 0 00'00	
direct	4945 Jul 04 02:35	24° 0 56'18		opposition	4953 May 02 23:33	14° 0 14'30	16°50'12
max. Earth dist.	4945 Oct 15 16:07	27° 0 14'28	33.61159 AU	min. Earth dist.	4953 May 05 08:12	14° 0 10'36	30.21466 AU
conjunction	4945 Oct 18 15:29	27° 0 20'48	13°54'01	direct	4953 Jul 21 16:54	12° 0 50'36	
minimum elong	4945 Oct 18 15:07	27° 0 20'46	13°54'02	max. Earth dist.	4953 Oct 25 13:24	15° 0 00'00	
retrograde	4946 Jan 30 07:22	29° 0 43'05		max. Earth dist.	4953 Nov 03 15:51	15° 0 20'40	32.05058 AU
opposition	4946 Apr 17 11:03	28° 0 24'41	14°56'10	conjunction	4953 Nov 06 04:31	15° 0 26'26	15°53'28
min. Earth dist.	4946 Apr 20 02:20	28° 0 20'29	31.56653 AU	minimum elong	4953 Nov 06 04:17	15° 0 26'25	15°53'29
direct	4946 Jul 06 09:02	27° 0 03'43		retrograde	4954 Feb 18 00:29	17° 0 58'55	
max. Earth dist.	4946 Oct 18 04:29	29° 0 23'28	33.39558 AU	opposition	4954 May 05 14:51	16° 0 37'35	17°01'05
conjunction	4946 Oct 21 02:34	29° 0 29'45	14°12'38	min. Earth dist.	4954 May 07 21:33	16° 0 33'48	30.05203 AU
minimum elong	4946 Oct 21 02:12	29° 0 29'43	14°12'38	direct	4954 Jul 24 08:16	15° 0 13'23	
	4946 Nov 04 05:48	0° 0 00'00		max. Earth dist.	4954 Nov 06 09:24	17° 0 44'44	31.89077 AU
retrograde	4947 Feb 01 16:59	1° 0 53'24		conjunction	4954 Nov 08 21:13	17° 0 50'28	16°02'38
opposition	4947 Apr 19 20:42	0° 0 34'37	15°15'50	minimum elong	4954 Nov 08 21:00	17° 0 50'27	16°02'38
min. Earth dist.	4947 Apr 22 11:48	0° 0 30'24	31.35550 AU	retrograde	4955 Feb 20 18:36	20° 0 24'05	
	4947 May 12 03:36	30° 0 00'00		opposition	4955 May 08 06:57	19° 0 02'30	17°10'22
direct	4947 Jul 08 17:08	29° 0 13'12		min. Earth dist.	4955 May 10 12:09	18° 0 58'48	29.89817 AU
	4947 Sep 02 11:46	0° 0 00'00		direct	4955 Jul 26 22:49	17° 0 38'01	
max. Earth dist.	4947 Oct 20 16:21	1° 0 34'24	33.18413 AU	max. Earth dist.	4955 Nov 09 05:54	20° 0 10'49	31.73967 AU
conjunction	4947 Oct 23 14:22	1° 0 40'44	14°30'22	conjunction	4955 Nov 11 14:48	20° 0 16'19	16°10'16
minimum elong	4947 Oct 23 14:01	1° 0 40'43	14°30'23	minimum elong	4955 Nov 11 14:37	20° 0 16'18	16°10'17
retrograde	4948 Feb 04 06:27	4° 0 05'44		retrograde	4956 Feb 23 11:36	22° 0 50'59	
opposition	4948 Apr 21 06:58	2° 0 46'34	15°34'33	opposition	4956 May 09 23:52	21° 0 29'11	17°18'00
min. Earth dist.	4948 Apr 23 20:54	2° 0 42'24	31.14926 AU	min. Earth dist.	4956 May 12 03:50	21° 0 25'33	29.75259 AU
direct	4948 Jul 10 01:43	1° 0 24'41		direct	4956 Jul 28 14:38	20° 0 04'28	
max. Earth dist.	4948 Oct 22 06:03	3° 0 47'24	32.97771 AU	max. Earth dist.	4956 Nov 11 00:57	22° 0 38'27	31.59719 AU
conjunction	4948 Oct 25 03:04	3° 0 53'42	14°47'09	conjunction	4956 Nov 13 08:49	22° 0 43'53	16°16'20
minimum elong	4948 Oct 25 02:43	3° 0 53'40	14°47'09	minimum elong	4956 Nov 13 08:39	22° 0 43'52	16°16'21
retrograde	4949 Feb 05 18:12	6° 0 20'02		retrograde	4957 Feb 25 07:22	25° 0 19'34	

opposition	4957 May 12 17:31	23° ℓ 57'33	17°23'55	opposition	4965 Jun 02 10:01	14° ♊ 25'11	17°03'39
min. Earth dist.	4957 May 14 19:14	23° ℓ 54'04	29.61534 AU	min. Earth dist.	4965 Jun 03 18:48	14° ♊ 22'51	28.83758 AU
direct	4957 Jul 31 06:43	22° ℓ 32'36		direct	4965 Aug 21 01:14	12° ♊ 59'03	
max. Earth dist.	4957 Nov 13 22:08	25° ℓ 07'50	31.46307 AU	max. Earth dist.	4965 Dec 05 11:23	15° ♊ 40'37	30.72970 AU
conjunction	4957 Nov 16 03:28	25° ℓ 13'03	16°20'47	conjunction	4965 Dec 06 20:53	15° ♊ 43'59	15°52'43
minimum elong	4957 Nov 16 03:21	25° ℓ 13'03	16°20'48	minimum elong	4965 Dec 06 21:04	15° ♊ 44'00	15°52'44
retrograde	4958 Feb 28 00:25	27° ℓ 49'40		retrograde	4966 Mar 20 18:34	18° ♊ 24'35	
opposition	4958 May 15 11:58	26° ℓ 27'27	17°28'04	opposition	4966 Jun 05 07:29	17° ♊ 01'16	16°52'03
min. Earth dist.	4958 May 17 12:52	26° ℓ 24'01	29.48612 AU	min. Earth dist.	4966 Jun 06 13:13	16° ♊ 59'09	28.78870 AU
direct	4958 Aug 02 23:59	25° ℓ 02'17		direct	4966 Aug 23 22:23	15° ♊ 35'08	
max. Earth dist.	4958 Nov 16 18:55	27° ℓ 38'35	31.33749 AU				
conjunction	4958 Nov 18 22:39	27° ℓ 43'41	16°23'34	conjunction	4966 Dec 09 17:43	18° ♊ 20'09	15°40'47
minimum elong	4958 Nov 18 22:33	27° ℓ 43'40	16°23'34	minimum elong	4966 Dec 09 17:54	18° ♊ 20'11	15°40'48
	4959 Jan 27 06:43	0° ♊		max. Earth dist.	4966 Dec 08 12:27	18° ♊ 17'12	30.68886 AU
retrograde	4959 Mar 02 20:30	0° ♊ 21'07		retrograde	4967 Mar 23 14:46	21° ♊ 00'49	
	4959 Apr 07 08:22	30° ♋		opposition	4967 Jun 08 05:05	19° ♊ 37'31	16°38'25
opposition	4959 May 18 06:45	28° ℓ 58'43	17°30'25	min. Earth dist.	4967 Jun 09 08:20	19° ♊ 35'35	28.75174 AU
min. Earth dist.	4959 May 20 05:01	28° ℓ 55'28	29.36516 AU	direct	4967 Aug 26 20:52	18° ♊ 11'27	
direct	4959 Aug 05 19:14	27° ℓ 33'21		max. Earth dist.	4967 Dec 11 11:13	20° ♊ 53'43	30.66024 AU
	4959 Nov 15 04:26	0° ♊		conjunction	4967 Dec 12 14:21	20° ♊ 56'27	15°26'59
max. Earth dist.	4959 Nov 19 16:50	0° ♊ 10'41	31.22044 AU	minimum elong	4967 Dec 12 14:36	20° ♊ 56'28	15°26'59
conjunction	4959 Nov 21 18:26	0° ♊ 15'36	16°24'38	retrograde	4968 Mar 25 12:49	23° ♊ 37'05	
minimum elong	4959 Nov 21 18:24	0° ♊ 15'35	16°24'39	opposition	4968 Jun 10 02:48	22° ♊ 13'50	16°22'47
retrograde	4960 Mar 04 15:13	2° ♊ 53'47		min. Earth dist.	4968 Jun 11 02:30	22° ♊ 12'09	28.72661 AU
opposition	4960 May 20 02:25	1° ♊ 31'11	17°30'53	direct	4968 Aug 28 18:44	20° ♊ 47'51	
min. Earth dist.	4960 May 21 23:56	1° ♊ 27'59	29.25268 AU	max. Earth dist.	4968 Dec 13 11:47	23° ♊ 30'23	30.64335 AU
direct	4960 Aug 07 13:02	0° ♊ 05'38		conjunction	4968 Dec 14 10:53	23° ♊ 32'42	15°11'21
max. Earth dist.	4960 Nov 21 15:15	2° ♊ 43'55	31.11252 AU	minimum elong	4968 Dec 14 11:08	23° ♊ 32'44	15°11'22
conjunction	4960 Nov 23 14:20	2° ♊ 48'36	16°23'56	retrograde	4969 Mar 28 07:20	26° ♊ 13'14	
minimum elong	4960 Nov 23 14:18	2° ♊ 48'36	16°23'56	opposition	4969 Jun 13 00:42	24° ♊ 50'03	16°05'12
retrograde	4961 Mar 07 11:34	5° ♊ 27'27		min. Earth dist.	4969 Jun 13 22:29	24° ♊ 48'30	28.71270 AU
opposition	4961 May 22 22:24	4° ♊ 04'40	17°29'27	direct	4969 Aug 31 16:33	23° ♊ 24'11	
min. Earth dist.	4961 May 24 16:50	4° ♊ 01'41	29.14913 AU	max. Earth dist.	4969 Dec 16 10:29	26° ♊ 06'41	30.63784 AU
direct	4961 Aug 10 10:42	2° ♊ 38'57		conjunction	4969 Dec 17 07:15	26° ♊ 08'46	14°53'58
max. Earth dist.	4961 Nov 24 13:28	5° ♊ 18'02	31.01404 AU	minimum elong	4969 Dec 17 07:34	26° ♊ 08'48	14°53'58
conjunction	4961 Nov 26 10:37	5° ♊ 22'32	16°21'26	retrograde	4970 Mar 31 03:59	28° ♊ 49'04	
minimum elong	4961 Nov 26 10:39	5° ♊ 22'32	16°21'27	opposition	4970 Jun 15 22:14	27° ♊ 25'58	15°45'45
retrograde	4962 Mar 10 07:33	8° ♊ 01'56		min. Earth dist.	4970 Jun 16 16:22	27° ♊ 24'41	28.70972 AU
opposition	4962 May 25 18:47	6° ♊ 38'59	17°26'02	direct	4970 Sep 03 15:01	26° ♊ 00'14	
min. Earth dist.	4962 May 27 11:57	6° ♊ 36'04	29.05518 AU	max. Earth dist.	4970 Dec 19 10:13	28° ♊ 42'43	30.64314 AU
direct	4962 Aug 13 06:53	5° ♊ 13'06		conjunction	4970 Dec 20 03:34	28° ♊ 44'27	14°34'52
max. Earth dist.	4962 Nov 27 13:16	7° ♊ 53'00	30.92587 AU	minimum elong	4970 Dec 20 03:52	28° ♊ 44'29	14°34'53
conjunction	4962 Nov 29 07:07	7° ♊ 57'12	16°17'05		4971 Jan 21 15:59	0° ♋	
minimum elong	4962 Nov 29 07:09	7° ♊ 57'12	16°17'06	retrograde	4971 Apr 02 22:59	1° ♋ 24'26	
retrograde	4963 Mar 13 03:47	10° ♊ 37'01		opposition	4971 Jun 18 19:59	0° ♋ 01'25	15°24'28
opposition	4963 May 28 15:32	9° ♊ 13'56	17°20'37		4971 Jun 19 16:08	30° ♋	
min. Earth dist.	4963 May 30 05:32	9° ♊ 11'15	28.97136 AU	min. Earth dist.	4971 Jun 19 12:26	0° ♋ 00'16	28.71724 AU
direct	4963 Aug 16 05:09	7° ♊ 47'55		direct	4971 Sep 06 11:34	28° ♊ 35'50	
max. Earth dist.	4963 Nov 30 11:48	10° ♊ 28'25	30.84851 AU		4971 Nov 18 11:34	0° ♋	
conjunction	4963 Dec 02 03:38	10° ♊ 32'24	16°10'52	conjunction	4971 Dec 22 23:25	1° ♋ 19'33	14°14'08
minimum elong	4963 Dec 02 03:44	10° ♊ 32'25	16°10'53	minimum elong	4971 Dec 22 23:46	1° ♋ 19'35	14°14'08
retrograde	4964 Mar 15 01:07	13° ♊ 12'35		max. Earth dist.	4971 Dec 22 08:44	1° ♋ 18'05	30.65913 AU
opposition	4964 May 30 12:37	11° ♊ 49'22	17°13'10	retrograde	4972 Apr 04 17:47	3° ♋ 59'06	
min. Earth dist.	4964 Jun 01 00:29	11° ♊ 46'50	28.89864 AU	opposition	4972 Jun 20 17:26	2° ♋ 36'12	15°01'28
direct	4964 Aug 18 01:55	10° ♊ 23'16		min. Earth dist.	4972 Jun 21 06:04	2° ♋ 35'18	28.73503 AU
max. Earth dist.	4964 Dec 02 12:40	13° ♊ 04'27	30.78296 AU	direct	4972 Sep 08 11:02	1° ♋ 10'46	
conjunction	4964 Dec 04 00:21	13° ♊ 08'03	16°02'45	conjunction	4972 Dec 24 19:00	3° ♋ 53'53	13°51'50
minimum elong	4964 Dec 04 00:28	13° ♊ 08'03	16°02'46	minimum elong	4972 Dec 24 19:21	3° ♋ 53'55	13°51'51
retrograde	4965 Mar 17 21:40	15° ♊ 48'28		max. Earth dist.	4972 Dec 24 07:11	3° ♋ 52'42	30.68546 AU
				retrograde	4973 Apr 07 11:37	6° ♋ 32'54	

opposition	4973 Jun 23 14:42	5°♄10'06	14°36'48	conjunction	4982 Jan 16 01:41	26°♄07'01	9°33'19
min. Earth dist.	4973 Jun 24 01:25	5°♄09'21	28.76318 AU	minimum elong	4982 Jan 16 02:03	26°♄07'03	9°33'19
direct	4973 Sep 11 08:00	3°♄44'51		max. Earth dist.	4982 Jan 16 18:15	26°♄08'37	31.41716 AU
				retrograde	4982 Apr 29 12:22	28°♄38'25	
conjunction	4973 Dec 27 14:04	6°♄27'15	13°28'02	opposition	4982 Jul 16 16:43	27°♄17'34	9°54'26
minimum elong	4973 Dec 27 14:27	6°♄27'17	13°28'02	min. Earth dist.	4982 Jul 16 00:22	27°♄18'40	29.51053 AU
max. Earth dist.	4973 Dec 27 05:27	6°♄26'23	30.72235 AU	direct	4982 Oct 04 21:33	25°♄54'58	
retrograde	4974 Apr 10 05:41	9°♄05'39					
opposition	4974 Jun 26 11:30	7°♄42'58	14°10'33	conjunction	4983 Jan 18 15:17	28°♄28'03	8°59'52
min. Earth dist.	4974 Jun 26 18:45	7°♄42'28	28.80154 AU	minimum elong	4983 Jan 18 15:38	28°♄28'05	8°59'53
direct	4974 Sep 14 06:40	6°♄17'53		max. Earth dist.	4983 Jan 19 10:02	28°♄29'50	31.55171 AU
					4983 Mar 02 19:05	0°♄	
conjunction	4974 Dec 30 08:40	8°♄59'30	13°02'48	retrograde	4983 May 02 01:10	0°♄58'24	
minimum elong	4974 Dec 30 09:02	8°♄59'32	13°02'49		4983 Jul 05 09:12	30°♄	
max. Earth dist.	4974 Dec 30 02:29	8°♄58'53	30.76963 AU	opposition	4983 Jul 19 08:42	29°♄37'52	9°18'17
retrograde	4975 Apr 12 23:21	11°♄37'12		min. Earth dist.	4983 Jul 18 12:55	29°♄39'12	29.64595 AU
opposition	4975 Jun 29 07:54	10°♄14'39	13°42'49	direct	4983 Oct 07 14:58	28°♄15'40	
min. Earth dist.	4975 Jun 29 12:42	10°♄14'19	28.85058 AU		4983 Dec 30 22:50	0°♄	
direct	4975 Sep 17 03:18	8°♄49'45					
				conjunction	4984 Jan 21 04:16	0°♄47'30	8°25'52
conjunction	4976 Jan 02 02:46	11°♄30'28	12°36'14	minimum elong	4984 Jan 21 04:36	0°♄47'31	8°25'52
minimum elong	4976 Jan 02 03:09	11°♄30'30	12°36'14	max. Earth dist.	4984 Jan 22 01:34	0°♄49'31	31.69460 AU
max. Earth dist.	4976 Jan 02 00:33	11°♄30'15	30.82789 AU	retrograde	4984 May 03 12:13	3°♄16'46	
retrograde	4976 Apr 14 16:17	14°♄07'24		min. Earth dist.	4984 Jul 20 02:39	1°♄57'59	29.78977 AU
opposition	4976 Jul 01 03:58	12°♄44'59	13°13'39	opposition	4984 Jul 21 00:18	1°♄56'33	8°41'35
min. Earth dist.	4976 Jul 01 05:34	12°♄44'53	28.91059 AU	direct	4984 Oct 09 06:20	0°♄34'45	
direct	4976 Sep 19 02:16	11°♄20'19					
				conjunction	4985 Jan 22 16:31	3°♄05'16	7°51'24
conjunction	4977 Jan 03 19:58	14°♄00'04	12°08'24	minimum elong	4985 Jan 22 16:50	3°♄05'18	7°51'25
minimum elong	4977 Jan 03 20:21	14°♄00'07	12°08'25	max. Earth dist.	4985 Jan 23 16:26	3°♄07'32	31.84544 AU
max. Earth dist.	4977 Jan 03 20:10	14°♄00'06	30.89744 AU	retrograde	4985 May 05 22:46	5°♄33'25	
retrograde	4977 Apr 17 09:37	16°♄36'11		opposition	4985 Jul 23 15:03	4°♄13'31	8°04'27
opposition	4977 Jul 03 23:30	15°♄13'57	12°43'10	min. Earth dist.	4985 Jul 22 14:47	4°♄15'07	29.94118 AU
min. Earth dist.	4977 Jul 03 21:35	15°♄14'04	28.98230 AU	direct	4985 Oct 11 22:12	2°♄52'05	
direct	4977 Sep 21 22:14	13°♄49'32					
				conjunction	4986 Jan 25 04:04	5°♄21'18	7°16'34
conjunction	4978 Jan 06 12:52	16°♄28'17	11°39'21	minimum elong	4986 Jan 25 04:21	5°♄21'19	7°16'35
minimum elong	4978 Jan 06 13:16	16°♄28'19	11°39'22	max. Earth dist.	4986 Jan 26 05:39	5°♄23'41	32.00344 AU
max. Earth dist.	4978 Jan 06 17:23	16°♄28'43	30.97879 AU	retrograde	4986 May 08 10:07	7°♄48'18	
retrograde	4978 Apr 20 01:06	19°♄03'31		min. Earth dist.	4986 Jul 25 02:21	6°♄30'26	30.09996 AU
opposition	4978 Jul 06 18:23	17°♄41'30	12°11'26	opposition	4986 Jul 26 04:58	6°♄28'41	7°26'59
min. Earth dist.	4978 Jul 06 13:47	17°♄41'49	29.06569 AU	direct	4986 Oct 14 11:33	5°♄07'37	
direct	4978 Sep 24 19:07	16°♄17'23					
				conjunction	4987 Jan 27 15:01	7°♄35'29	6°41'27
conjunction	4979 Jan 09 05:01	18°♄55'05	11°09'14	minimum elong	4987 Jan 27 15:17	7°♄35'30	6°41'29
minimum elong	4979 Jan 09 05:24	18°♄55'07	11°09'15	max. Earth dist.	4987 Jan 28 19:38	7°♄38'08	32.16850 AU
max. Earth dist.	4979 Jan 09 11:38	18°♄55'44	31.07193 AU	retrograde	4987 May 10 19:33	10°♄01'18	
retrograde	4979 Apr 22 18:37	21°♄29'24		opposition	4987 Jul 28 18:21	8°♄41'58	6°49'17
opposition	4979 Jul 09 12:46	20°♄07'39	11°38'34	min. Earth dist.	4987 Jul 27 13:53	8°♄43'50	30.26577 AU
min. Earth dist.	4979 Jul 09 04:13	20°♄08'14	29.16085 AU	direct	4987 Oct 17 03:44	7°♄21'16	
direct	4979 Sep 27 15:07	18°♄43'53					
				conjunction	4988 Jan 30 00:51	9°♄47'45	6°06'09
conjunction	4980 Jan 11 20:34	21°♄20'29	10°38'06	minimum elong	4988 Jan 30 01:05	9°♄47'46	6°06'09
minimum elong	4980 Jan 11 20:57	21°♄20'31	10°38'06	max. Earth dist.	4988 Jan 31 06:45	9°♄50'30	32.34046 AU
max. Earth dist.	4980 Jan 12 07:25	21°♄21'32	31.17646 AU	retrograde	4988 May 12 06:38	12°♄12'23	
retrograde	4980 Apr 24 08:31	23°♄53'53		min. Earth dist.	4988 Jul 28 23:20	10°♄55'22	30.43897 AU
opposition	4980 Jul 11 06:46	22°♄32'24	11°04'42	opposition	4988 Jul 30 06:56	10°♄53'19	6°11'26
min. Earth dist.	4980 Jul 10 20:07	22°♄33'07	29.26713 AU	direct	4988 Oct 18 17:17	9°♄32'58	
direct	4980 Sep 29 10:14	21°♄09'01					
				conjunction	4989 Jan 31 10:08	11°♄58'04	5°30'42
conjunction	4981 Jan 13 11:25	23°♄44'29	10°06'06	minimum elong	4989 Jan 31 10:21	11°♄58'05	5°30'43
minimum elong	4981 Jan 13 11:47	23°♄44'31	10°06'07	max. Earth dist.	4989 Feb 01 19:28	12°♄01'06	32.51967 AU
max. Earth dist.	4981 Jan 14 00:25	23°♄45'44	31.29185 AU	retrograde	4989 May 14 13:53	14°♄21'29	
retrograde	4981 Apr 26 23:17	26°♄16'53		min. Earth dist.	4989 Jul 31 09:45	13°♄04'50	30.61976 AU
opposition	4981 Jul 13 23:56	24°♄55'43	10°29'57	opposition	4989 Aug 01 18:46	13°♄02'42	5°33'29
min. Earth dist.	4981 Jul 13 09:21	24°♄56'42	29.38399 AU	direct	4989 Oct 21 06:26	11°♄42'43	
direct	4981 Oct 02 04:42	23°♄32'43					

conjunction	4990 Feb 02 18:30	14°06'26	4°55'11	direct	4997 Nov 07 10:04	27°58'26	
minimum elong	4990 Feb 02 18:42	14°06'27	4°55'11		4998 Feb 12 18:19	0°	
max. Earth dist.	4990 Feb 04 05:15	14°09'35	32.70646 AU				
	4990 Feb 27 23:46	15°		conjunction	4998 Feb 18 13:32	0°11'51	0°16'50
retrograde	4990 May 16 22:40	16°28'40		minimum elong	4998 Feb 18 13:33	0°11'51	0°16'50
min. Earth dist.	4990 Aug 02 17:10	15°12'31	30.80841 AU	max. Earth dist.	4998 Feb 20 15:58	0°16'08	34.42917 AU
opposition	4990 Aug 04 05:45	15°10'10	4°55'33	retrograde	4998 Jun 01 13:56	2°25'07	
	4990 Aug 10 20:29	15°		min. Earth dist.	4998 Aug 18 19:01	1°12'29	32.54418 AU
direct	4990 Oct 23 19:55	13°50'34		opposition	4998 Aug 20 21:27	1°09'24	0°00'09
	4990 Dec 31 14:57	15°		desc. node	4998 Aug 22 08:49	1°07'14	
					4998 Oct 19 00:38	30°	
conjunction	4991 Feb 05 02:13	16°12'57	4°19'41	direct	4998 Nov 09 16:28	29°53'12	
minimum elong	4991 Feb 05 02:24	16°12'58	4°19'42		4998 Dec 01 02:17	0°	
max. Earth dist.	4991 Feb 06 16:11	16°16'21	32.90081 AU				
retrograde	4991 May 19 05:28	18°33'59		conjunction	4999 Feb 20 16:00	2°05'22	0°-16'-29
min. Earth dist.	4991 Aug 05 02:06	17°18'15	31.00486 AU	minimum elong	4999 Feb 20 16:00	2°05'22	0°16'29
opposition	4991 Aug 06 16:12	17°15'49	4°17'40	max. Earth dist.	4999 Feb 22 18:52	2°09'40	34.66264 AU
direct	4991 Oct 26 07:53	15°56'38		retrograde	4999 Jun 03 15:28	4°17'32	
				min. Earth dist.	4999 Aug 20 21:37	3°05'22	32.77887 AU
conjunction	4992 Feb 07 09:14	18°17'40	3°44'16	opposition	4999 Aug 23 02:21	3°02'09	0°-34'-55
minimum elong	4992 Feb 07 09:23	18°17'41	3°44'16	direct	4999 Nov 12 00:05	1°46'19	
max. Earth dist.	4992 Feb 09 00:57	18°21'13	33.10269 AU				
retrograde	4992 May 20 11:21	20°37'33		conjunction	5000 Feb 22 17:53	3°57'16	0°-49'-16
min. Earth dist.	4992 Aug 06 08:33	19°22'21	31.20867 AU	minimum elong	5000 Feb 22 17:51	3°57'16	0°49'17
opposition	4992 Aug 08 01:48	19°19'43	3°39'56	max. Earth dist.	5000 Feb 24 22:29	4°01'40	34.89845 AU
direct	4992 Oct 27 19:20	18°00'58		retrograde	5000 Jun 05 15:57	6°08'21	
				min. Earth dist.	5000 Aug 23 01:18	4°56'29	33.01637 AU
conjunction	4993 Feb 08 15:26	20°20'40	3°09'00	opposition	5000 Aug 25 06:42	4°53'15	-1°-9'-27
minimum elong	4993 Feb 08 15:33	20°20'41	3°09'01	direct	5000 Nov 14 05:53	3°37'47	
max. Earth dist.	4993 Feb 10 09:25	20°24'24	33.31130 AU				
retrograde	4993 May 22 16:11	22°39'26		conjunction	5001 Feb 24 19:02	5°47'31	-1°-21'-35
min. Earth dist.	4993 Aug 08 15:56	21°24'40	31.41927 AU	minimum elong	5001 Feb 24 18:59	5°47'30	1°21'35
opposition	4993 Aug 10 10:49	21°21'58	3°02'25	max. Earth dist.	5001 Feb 27 00:56	5°52'00	35.13706 AU
direct	4993 Oct 30 03:58	20°03'38		retrograde	5001 Jun 07 14:59	7°57'32	
				min. Earth dist.	5001 Aug 25 03:08	6°46'03	33.25680 AU
conjunction	4994 Feb 10 21:10	22°22'03	2°33'56	opposition	5001 Aug 27 10:12	6°42'43	-1°-43'-24
minimum elong	4994 Feb 10 21:16	22°22'04	2°33'56	direct	5001 Nov 16 11:40	5°27'36	
max. Earth dist.	4994 Feb 12 17:21	22°25'56	33.52606 AU				
retrograde	4994 May 24 20:09	24°39'41		conjunction	5002 Feb 26 19:31	7°36'08	-1°-53'-21
min. Earth dist.	4994 Aug 10 22:07	23°25'24	31.63561 AU	minimum elong	5002 Feb 26 19:27	7°36'07	1°53'23
opposition	4994 Aug 12 18:55	23°22'35	2°25'11	max. Earth dist.	5002 Mar 01 02:21	7°40'40	35.37860 AU
direct	4994 Nov 01 13:02	22°04'42		retrograde	5002 Jun 09 14:52	9°45'07	
				min. Earth dist.	5002 Aug 27 04:21	8°33'59	33.50080 AU
conjunction	4995 Feb 13 02:08	24°21'50	1°59'08	opposition	5002 Aug 29 13:02	8°30'35	-2°-16'-46
minimum elong	4995 Feb 13 02:13	24°21'51	1°59'09	direct	5002 Nov 18 13:58	7°15'50	
max. Earth dist.	4995 Feb 14 23:29	24°25'48	33.74594 AU				
retrograde	4995 May 27 01:57	26°38'22		conjunction	5003 Feb 28 19:32	9°23'12	-2°-24'-36
min. Earth dist.	4995 Aug 13 03:36	25°24'33	31.85713 AU	minimum elong	5003 Feb 28 19:27	9°23'11	2°24'36
opposition	4995 Aug 15 02:35	25°21'38	1°48'18	max. Earth dist.	5003 Mar 03 04:39	9°27'53	35.62368 AU
direct	4995 Nov 03 19:22	24°04'11		retrograde	5003 Jun 11 13:53	11°31'10	
				min. Earth dist.	5003 Aug 29 05:42	10°20'23	33.74835 AU
conjunction	4996 Feb 15 06:31	26°20'04	1°24'39	opposition	5003 Aug 31 15:22	10°16'56	-2°-49'-30
minimum elong	4996 Feb 15 06:34	26°20'04	1°24'39	direct	5003 Nov 20 16:27	9°02'33	
max. Earth dist.	4996 Feb 17 06:26	26°24'12	33.97029 AU				
retrograde	4996 May 28 05:45	28°35'30		conjunction	5004 Mar 01 18:42	11°08'47	-2°-55'-15
min. Earth dist.	4996 Aug 14 09:45	27°22'05	32.08280 AU	minimum elong	5004 Mar 01 18:36	11°08'47	2°55'16
opposition	4996 Aug 16 09:37	27°19'07	1°11'47	max. Earth dist.	5004 Mar 04 04:17	11°13'28	35.87220 AU
direct	4996 Nov 05 03:49	26°02'06		retrograde	5004 Jun 12 14:43	13°15'46	
				min. Earth dist.	5004 Aug 30 04:59	12°05'25	33.99951 AU
conjunction	4997 Feb 16 10:16	28°16'44	0°50'32	opposition	5004 Sep 01 17:04	12°01'51	-3°-21'-36
minimum elong	4997 Feb 16 10:18	28°16'44	0°50'33	direct	5004 Nov 21 16:19	10°47'51	
max. Earth dist.	4997 Feb 18 10:30	28°20'52	34.19825 AU				
	4997 Apr 14 14:51	0°		conjunction	5005 Mar 03 17:35	12°52'59	-3°-25'-20
retrograde	4997 May 30 11:32	0°31'05		minimum elong	5005 Mar 03 17:29	12°52'58	3°25'20
	4997 Jul 17 03:51	30°		max. Earth dist.	5005 Mar 06 05:28	12°57'49	36.12389 AU
min. Earth dist.	4997 Aug 16 13:33	29°18'08	32.31207 AU	retrograde	5005 Jun 14 13:23	14°59'00	
opposition	4997 Aug 18 15:45	29°15'03	0°35'44	min. Earth dist.	5005 Sep 01 05:51	13°48'58	34.25368 AU

opposition	5005 Sep 03 18:05	13° 14 45'25	-3°-53'-2	conjunction	5014 Mar 18 09:15	27° 18 34'11	-7°-27'-59
direct	5005 Nov 23 18:21	12° 13 31'47		minimum elong	5014 Mar 18 09:02	27° 18 34'10	7°28'00
				max. Earth dist.	5014 Mar 21 02:51	27° 18 39'09	38.43289 AU
conjunction	5006 Mar 05 15:51	14° 13 35'52	-3°-54'-48	retrograde	5014 Jun 29 02:52	29° 18 32'14	
minimum elong	5006 Mar 05 15:43	14° 13 35'51	3°54'49	min. Earth dist.	5014 Sep 16 09:38	28° 18 25'00	36.57864 AU
max. Earth dist.	5006 Mar 08 03:59	14° 13 40'41	36.37825 AU	opposition	5014 Sep 19 04:21	28° 18 21'14	-8°-5'-8
retrograde	5006 Jun 16 12:41	16° 13 40'55		direct	5014 Dec 09 10:10	27° 18 10'41	
min. Earth dist.	5006 Sep 03 04:15	15° 13 31'19	34.51025 AU				
opposition	5006 Sep 05 18:33	15° 13 27'40	-4°-23'-47	conjunction	5015 Mar 20 03:16	29° 18 05'58	-7°-51'-46
direct	5006 Nov 25 20:05	14° 13 14'26		minimum elong	5015 Mar 20 03:04	29° 18 05'57	7°51'48
				max. Earth dist.	5015 Mar 22 21:57	29° 18 10'59	38.68907 AU
conjunction	5007 Mar 07 13:33	16° 13 17'28	-4°-23'-39		5015 Apr 20 05:46	0° 19 03'12	
minimum elong	5007 Mar 07 13:24	16° 13 17'27	4°23'39	retrograde	5015 Jun 30 18:05	1° 19 03'12	
max. Earth dist.	5007 Mar 10 03:16	16° 13 22'22	36.63443 AU		5015 Sep 15 10:10	30° 19 03'12	
retrograde	5007 Jun 18 10:28	18° 13 21'36		min. Earth dist.	5015 Sep 18 04:41	29° 18 56'16	36.83703 AU
min. Earth dist.	5007 Sep 05 04:04	17° 13 12'19	34.76861 AU	opposition	5015 Sep 21 00:16	29° 18 52'29	-8°-29'-41
opposition	5007 Sep 07 18:42	17° 13 08'40	-4°-53'-52	direct	5015 Dec 11 08:45	28° 18 42'14	
direct	5007 Nov 27 20:39	15° 13 55'49			5016 Feb 29 01:55	0° 19 03'12	
conjunction	5008 Mar 08 10:56	17° 13 57'49	-4°-51'-52	conjunction	5016 Mar 20 20:50	0° 19 36'39	-8°-14'-54
minimum elong	5008 Mar 08 10:46	17° 13 57'49	4°51'53	minimum elong	5016 Mar 20 20:37	0° 19 36'38	8°14'55
max. Earth dist.	5008 Mar 11 01:31	18° 13 02'46	36.89199 AU	max. Earth dist.	5016 Mar 23 15:29	0° 19 41'38	38.94583 AU
retrograde	5008 Jun 19 05:19	20° 13 01'04		retrograde	5016 Jul 01 12:37	2° 19 33'08	
min. Earth dist.	5008 Sep 06 02:26	18° 13 52'09	35.02792 AU	min. Earth dist.	5016 Sep 18 22:57	1° 19 26'31	37.09626 AU
opposition	5008 Sep 08 18:08	18° 13 48'27	-5°-23'-15	opposition	5016 Sep 21 19:43	1° 19 22'40	-8°-53'-31
direct	5008 Nov 28 22:18	17° 13 35'58		direct	5016 Dec 12 03:11	0° 19 12'45	
conjunction	5009 Mar 10 07:43	19° 13 36'58	-5°-19'-28	conjunction	5017 Mar 22 14:08	2° 19 06'20	-8°-37'-23
minimum elong	5009 Mar 10 07:34	19° 13 36'57	5°19'29	minimum elong	5017 Mar 22 13:56	2° 19 06'19	8°37'25
max. Earth dist.	5009 Mar 12 22:28	19° 13 41'53	37.14997 AU	max. Earth dist.	5017 Mar 25 10:24	2° 19 11'24	39.20324 AU
retrograde	5009 Jun 21 01:53	21° 13 39'19		retrograde	5017 Jul 03 05:25	4° 19 02'05	
min. Earth dist.	5009 Sep 08 00:40	20° 13 30'44	35.28758 AU	min. Earth dist.	5017 Sep 20 18:18	2° 19 55'43	37.35580 AU
opposition	5009 Sep 10 17:10	20° 13 27'01	-5°-51'-57	opposition	5017 Sep 23 14:44	2° 19 51'55	-9°-16'-40
direct	5009 Nov 30 21:12	19° 13 14'53		direct	5017 Dec 13 22:41	1° 19 42'19	
conjunction	5010 Mar 12 04:17	21° 13 14'54	-5°-46'-26	conjunction	5018 Mar 24 06:54	3° 19 35'06	-8°-59'-14
minimum elong	5010 Mar 12 04:06	21° 13 14'53	5°46'27	minimum elong	5018 Mar 24 06:41	3° 19 35'05	8°59'15
max. Earth dist.	5010 Mar 14 20:19	21° 13 19'53	37.40782 AU	max. Earth dist.	5018 Mar 27 02:40	3° 19 40'06	39.46080 AU
retrograde	5010 Jun 22 21:04	23° 13 16'22		retrograde	5018 Jul 05 00:27	5° 19 30'07	
min. Earth dist.	5010 Sep 09 23:18	22° 13 08'03	35.54675 AU	min. Earth dist.	5018 Sep 22 11:15	4° 19 24'07	37.61534 AU
opposition	5010 Sep 12 15:35	22° 13 04'21	-6°-19'-58	opposition	5018 Sep 25 09:13	4° 19 20'15	-9°-39'-8
direct	5010 Dec 02 20:28	20° 13 52'34		direct	5018 Dec 15 15:16	3° 19 11'00	
conjunction	5011 Mar 14 00:15	22° 13 51'36	-6°-12'-47	conjunction	5019 Mar 25 23:26	5° 19 03'00	-9°-20'-27
minimum elong	5011 Mar 14 00:04	22° 13 51'35	6°12'47	minimum elong	5019 Mar 25 23:14	5° 19 02'59	9°20'28
max. Earth dist.	5011 Mar 16 15:43	22° 13 56'31	37.66500 AU	max. Earth dist.	5019 Mar 28 20:30	5° 19 08'03	39.71804 AU
retrograde	5011 Jun 24 18:34	24° 13 52'12		retrograde	5019 Jul 06 18:31	6° 19 57'19	
min. Earth dist.	5011 Sep 11 19:48	23° 13 44'13	35.80532 AU	min. Earth dist.	5019 Sep 24 06:13	5° 19 51'34	37.87437 AU
opposition	5011 Sep 14 13:36	23° 13 40'27	-6°-47'-18	opposition	5019 Sep 27 03:36	5° 19 47'45	-10°00'-55
direct	5011 Dec 04 17:26	22° 13 29'00		direct	5019 Dec 17 08:39	4° 19 38'50	
conjunction	5012 Mar 14 19:44	24° 13 27'03	-6°-38'-29	conjunction	5020 Mar 26 15:34	6° 19 30'04	-9°-41'-2
minimum elong	5012 Mar 14 19:32	24° 13 27'02	6°38'30	minimum elong	5020 Mar 26 15:21	6° 19 30'03	9°41'02
max. Earth dist.	5012 Mar 17 12:40	24° 13 32'02	37.92137 AU	max. Earth dist.	5020 Mar 29 12:31	6° 19 35'06	39.97445 AU
retrograde	5012 Jun 25 14:11	26° 13 26'47		retrograde	5020 Jul 07 10:07	8° 19 23'43	
min. Earth dist.	5012 Sep 12 17:56	25° 13 19'00	36.06320 AU	min. Earth dist.	5020 Sep 24 23:14	7° 19 18'16	38.13208 AU
opposition	5012 Sep 15 11:10	25° 13 15'18	-7°-13'-56	opposition	5020 Sep 27 21:23	7° 19 14'25	-10°-22'-3
direct	5012 Dec 05 15:27	24° 13 04'08		direct	5020 Dec 18 03:06	6° 19 05'50	
conjunction	5013 Mar 16 14:45	26° 13 01'14	-7°-3'-33	conjunction	5021 Mar 28 07:26	7° 19 56'20	-10°-1'00
minimum elong	5013 Mar 16 14:34	26° 13 01'14	7°03'34	minimum elong	5021 Mar 28 07:13	7° 19 56'19	10°01'02
max. Earth dist.	5013 Mar 19 07:28	26° 13 06'10	38.17723 AU	max. Earth dist.	5021 Mar 31 04:14	8° 19 01'19	40.22912 AU
retrograde	5013 Jun 27 09:29	28° 13 00'07		retrograde	5021 Jul 09 00:52	9° 19 49'18	
min. Earth dist.	5013 Sep 14 13:16	26° 13 52'38	36.32076 AU	min. Earth dist.	5021 Sep 26 16:58	8° 19 44'06	38.38794 AU
opposition	5013 Sep 17 07:50	26° 13 48'52	-7°-39'-53	opposition	5021 Sep 29 14:48	8° 19 40'17	-10°-42'-32
direct	5013 Dec 07 12:54	25° 13 38'00		direct	5021 Dec 19 21:42	7° 19 32'00	

conjunction	5022 Mar 29 23:09	9°V21'46	-10°-20'-23	retrograde	5030 Jul 21 07:29	22°V00'01	
minimum elong	5022 Mar 29 22:57	9°V21'45	10°20'24	min. Earth dist.	5030 Oct 09 13:19	20°V56'39	40.58210 AU
max. Earth dist.	5022 Apr 01 20:33	9°V26'47	40.48158 AU	opposition	5030 Oct 12 11:20	20°V52'58	-13°-19'-23
retrograde	5022 Jul 10 14:02	11°V14'04		direct	5031 Jan 01 21:15	19°V46'54	
min. Earth dist.	5022 Sep 28 10:35	10°V09'06	38.64110 AU				
opposition	5022 Oct 01 07:55	10°V05'19	-11°-2'-23	conjunction	5031 Apr 11 04:10	21°V30'30	-12°-49'-6
direct	5022 Dec 21 17:28	8°V57'20		minimum elong	5031 Apr 11 03:58	21°V30'29	12°49'07
				max. Earth dist.	5031 Apr 14 01:23	21°V35'14	42.64809 AU
conjunction	5023 Mar 31 14:17	10°V46'21	-10°-39'-11	retrograde	5031 Jul 22 20:58	23°V17'11	
minimum elong	5023 Mar 31 14:04	10°V46'20	10°39'13	min. Earth dist.	5031 Oct 11 04:30	22°V13'58	40.81718 AU
max. Earth dist.	5023 Apr 03 10:32	10°V51'15	40.73116 AU	opposition	5031 Oct 14 01:25	22°V10'21	-13°-33'-50
retrograde	5023 Jul 12 06:41	12°V38'00		direct	5032 Jan 03 10:19	21°V04'34	
min. Earth dist.	5023 Sep 30 02:45	11°V33'16	38.89135 AU				
opposition	5023 Oct 03 00:45	11°V29'29	-11°-21'-37	conjunction	5032 Apr 11 16:42	22°V47'35	-13°-2'-51
direct	5023 Dec 23 09:13	10°V21'45		minimum elong	5032 Apr 11 16:32	22°V47'35	13°02'52
				max. Earth dist.	5032 Apr 14 13:40	22°V52'17	42.88015 AU
conjunction	5024 Apr 01 05:20	12°V10'02	-10°-57'-25	retrograde	5032 Jul 23 08:38	24°V33'44	
minimum elong	5024 Apr 01 05:07	12°V10'01	10°57'25	min. Earth dist.	5032 Oct 11 17:44	23°V30'46	41.04974 AU
max. Earth dist.	5024 Apr 04 02:21	12°V14'57	40.97773 AU	opposition	5032 Oct 14 14:53	23°V27'09	-13°-47'-45
retrograde	5024 Jul 12 21:55	14°V01'01		direct	5033 Jan 04 00:06	22°V21'37	
min. Earth dist.	5024 Sep 30 20:26	12°V56'24	39.13857 AU				
opposition	5024 Oct 03 17:08	12°V52'42	-11°-40'-15	conjunction	5033 Apr 13 04:54	24°V04'05	-13°-16'-5
direct	5024 Dec 24 01:48	11°V45'13		minimum elong	5033 Apr 13 04:43	24°V04'05	13°16'06
				max. Earth dist.	5033 Apr 16 01:06	24°V08'43	43.10935 AU
conjunction	5025 Apr 02 19:54	13°V32'46	-11°-15'-4	retrograde	5033 Jul 24 21:09	25°V49'43	
minimum elong	5025 Apr 02 19:41	13°V32'45	11°15'06	min. Earth dist.	5033 Oct 13 07:39	24°V46'57	41.27927 AU
max. Earth dist.	5025 Apr 05 16:01	13°V37'36	41.22151 AU	opposition	5033 Oct 16 04:18	24°V43'22	-14°-1'-8
retrograde	5025 Jul 14 13:38	15°V23'04		direct	5034 Jan 05 13:31	23°V38'05	
min. Earth dist.	5025 Oct 02 11:30	14°V18'41	39.38313 AU				
opposition	5025 Oct 05 09:00	14°V14'58	-11°-58'-17	conjunction	5034 Apr 14 17:01	25°V20'01	-13°-28'-49
direct	5025 Dec 25 16:39	13°V07'42		minimum elong	5034 Apr 14 16:51	25°V20'00	13°28'51
				max. Earth dist.	5034 Apr 17 13:36	25°V24'39	43.33518 AU
conjunction	5026 Apr 04 10:00	14°V54'33	-11°-32'-10	retrograde	5034 Jul 26 07:02	27°V05'09	
minimum elong	5026 Apr 04 09:48	14°V54'32	11°32'11	min. Earth dist.	5034 Oct 14 21:46	26°V02'32	41.50493 AU
max. Earth dist.	5026 Apr 07 06:30	14°V59'21	41.46282 AU	opposition	5034 Oct 17 17:22	25°V59'01	-14°-14'00
retrograde	5026 Jul 16 04:19	16°V44'10		direct	5035 Jan 07 05:00	24°V53'59	
min. Earth dist.	5026 Oct 04 03:44	15°V39'56	39.62570 AU				
opposition	5026 Oct 07 00:39	15°V36'15	-12°-15'-42	conjunction	5035 Apr 16 04:50	26°V35'22	-13°-41'-5
direct	5026 Dec 27 07:34	14°V29'13		minimum elong	5035 Apr 16 04:39	26°V35'21	13°41'06
				max. Earth dist.	5035 Apr 18 23:42	26°V39'51	43.55710 AU
conjunction	5027 Apr 05 23:56	16°V15'22	-11°-48'-41	retrograde	5035 Jul 27 20:41	28°V20'00	
minimum elong	5027 Apr 05 23:43	16°V15'21	11°48'43	min. Earth dist.	5035 Oct 16 10:23	27°V17'35	41.72659 AU
max. Earth dist.	5027 Apr 08 20:49	16°V20'11	41.70255 AU	opposition	5035 Oct 19 06:13	27°V14'04	-14°-26'-23
retrograde	5027 Jul 17 15:21	18°V04'21		direct	5036 Jan 08 16:59	26°V09'15	
min. Earth dist.	5027 Oct 05 18:37	17°V00'20	39.86673 AU				
opposition	5027 Oct 08 15:50	16°V56'38	-12°-32'-31	conjunction	5036 Apr 16 16:27	27°V50'05	-13°-52'-52
direct	5027 Dec 29 01:17	15°V49'50		minimum elong	5036 Apr 16 16:18	27°V50'05	13°52'54
				max. Earth dist.	5036 Apr 19 11:40	27°V54'35	43.77484 AU
conjunction	5028 Apr 06 13:19	17°V35'18	-12°-4'-37	retrograde	5036 Jul 28 10:20	29°V34'13	
minimum elong	5028 Apr 06 13:08	17°V35'17	12°04'38	min. Earth dist.	5036 Oct 17 00:44	28°V31'53	41.94400 AU
max. Earth dist.	5028 Apr 09 09:37	17°V40'03	41.94092 AU	opposition	5036 Oct 19 18:51	28°V28'29	-14°-38'-16
retrograde	5028 Jul 18 04:01	19°V23'40		direct	5037 Jan 09 04:25	27°V23'51	
min. Earth dist.	5028 Oct 06 09:02	18°V19'52	40.10661 AU				
opposition	5028 Oct 09 06:45	18°V16'10	-12°-48'-44	conjunction	5037 Apr 18 03:50	29°V04'09	-14°-4'-12
direct	5028 Dec 29 17:06	17°V09'36		minimum elong	5037 Apr 18 03:41	29°V04'08	14°04'13
				max. Earth dist.	5037 Apr 20 21:59	29°V08'33	43.98863 AU
conjunction	5029 Apr 08 02:41	18°V54'25	-12°-20'00		5037 May 25 03:52	0°B	
minimum elong	5029 Apr 08 02:29	18°V54'24	12°20'01	retrograde	5037 Jul 29 21:13	0°B47'45	
max. Earth dist.	5029 Apr 11 00:08	18°V59'14	42.17811 AU		5037 Oct 06 15:46	30°RV	
retrograde	5029 Jul 19 16:37	20°V42'12		min. Earth dist.	5037 Oct 18 12:22	29°V45'36	42.15755 AU
min. Earth dist.	5029 Oct 08 00:14	19°V38'34	40.34510 AU	opposition	5037 Oct 21 06:51	29°V42'11	-14°-49'-41
opposition	5029 Oct 10 21:09	19°V34'55	-13°-4'-21	direct	5038 Jan 10 15:52	28°V37'45	
direct	5029 Dec 31 08:45	18°V28'36			5038 Apr 08 12:38	0°B	
conjunction	5030 Apr 09 15:36	20°V12'48	-12°-34'-49	conjunction	5038 Apr 19 14:47	0°B17'31	-14°-15'-4
minimum elong	5030 Apr 09 15:25	20°V12'47	12°34'50	minimum elong	5038 Apr 19 14:39	0°B17'30	14°15'07
max. Earth dist.	5030 Apr 12 12:09	20°V17'31	42.41398 AU	max. Earth dist.	5038 Apr 22 08:25	0°B21'51	44.19887 AU

retrograde	5038 Jul 31 07:18	2°8'00"36		min. Earth dist.	5046 Oct 29 19:34	10°8'21"53	43.96480 AU
min. Earth dist.	5038 Oct 20 01:19	0°8'58"33	42.36805 AU	opposition	5046 Nov 01 09:21	10°8'18"48	-16°-10'-48
opposition	5038 Oct 22 18:54	0°8'55"12	-15°00'-36	direct	5047 Jan 21 22:49	9°8'16"06	
	5038 Dec 15 14:05	30°8'00"00					
direct	5039 Jan 12 04:19	29°8'50"57		conjunction	5047 Apr 30 08:10	10°8'51"43	-15°-32'-24
	5039 Feb 08 10:28	0°8'		minimum elong	5047 Apr 30 08:06	10°8'51"43	15°32'26
				max. Earth dist.	5047 May 02 22:21	10°8'55"40	45.98103 AU
conjunction	5039 Apr 21 01:30	1°8'30"11	-14°-25'-29	retrograde	5047 Aug 10 23:22	12°8'30"55	
minimum elong	5039 Apr 21 01:22	1°8'30"11	14°25'29	min. Earth dist.	5047 Oct 31 05:17	11°8'30"13	44.14903 AU
max. Earth dist.	5039 Apr 23 19:39	1°8'34"32	44.40645 AU	opposition	5047 Nov 02 19:15	11°8'27"07	-16°-17'-38
retrograde	5039 Aug 01 14:35	3°8'12"47		direct	5048 Jan 23 07:54	10°8'24"35	
min. Earth dist.	5039 Oct 21 13:18	2°8'10"53	42.57594 AU				
opposition	5039 Oct 24 06:34	2°8'07"33	-15°-11'-2	conjunction	5048 Apr 30 17:22	11°8'59"47	-15°-38'-56
direct	5040 Jan 13 18:55	1°8'03"28		minimum elong	5048 Apr 30 17:17	11°8'59"47	15°38'57
				max. Earth dist.	5048 May 03 06:53	12°8'03"41	46.16172 AU
conjunction	5040 Apr 21 11:58	2°8'42"12	-14°-35'-24	retrograde	5048 Aug 11 09:53	13°8'38"35	
minimum elong	5040 Apr 21 11:50	2°8'42"12	14°35'26	min. Earth dist.	5048 Oct 31 16:50	12°8'37"55	44.32849 AU
max. Earth dist.	5040 Apr 24 05:00	2°8'46"28	44.61174 AU	opposition	5048 Nov 03 04:55	12°8'34"56	-16°-24'-5
retrograde	5040 Aug 02 01:25	4°8'24"20		direct	5049 Jan 23 16:19	11°8'32"33	
min. Earth dist.	5040 Oct 22 00:11	3°8'22"36	42.78182 AU				
opposition	5040 Oct 24 17:50	3°8'19"16	-15°-20'-58	conjunction	5049 May 02 02:26	13°8'07"20	-15°-45'-6
direct	5041 Jan 14 06:14	2°8'15"22		minimum elong	5049 May 02 02:22	13°8'07"20	15°45'08
				max. Earth dist.	5049 May 04 15:23	13°8'11"10	46.33788 AU
conjunction	5041 Apr 22 22:20	3°8'53"37	-14°-44'-52	retrograde	5049 Aug 12 17:27	14°8'45"43	
minimum elong	5041 Apr 22 22:13	3°8'53"36	14°44'53	min. Earth dist.	5049 Nov 02 02:34	13°8'45"09	44.50338 AU
max. Earth dist.	5041 Apr 25 16:07	3°8'57"54	44.81507 AU	opposition	5049 Nov 04 14:17	13°8'42"12	-16°-30'-10
retrograde	5041 Aug 03 12:02	5°8'35"18		direct	5050 Jan 25 01:33	12°8'39"57	
min. Earth dist.	5041 Oct 23 12:30	4°8'33"41	42.98560 AU				
opposition	5041 Oct 26 05:00	4°8'30"24	-15°-30'-25	conjunction	5050 May 03 10:56	14°8'14"20	-15°-50'-54
direct	5042 Jan 15 18:35	3°8'26"43		minimum elong	5050 May 03 10:52	14°8'14"20	15°50'55
				max. Earth dist.	5050 May 05 22:28	14°8'18"04	46.50979 AU
conjunction	5042 Apr 24 08:18	5°8'04"29	-14°-53'-52		5050 Jun 03 23:31	15°8'	
minimum elong	5042 Apr 24 08:11	5°8'04"28	14°53'54	retrograde	5050 Aug 14 01:53	15°8'52"19	
max. Earth dist.	5042 Apr 27 01:13	5°8'08"42	45.01646 AU		5050 Oct 27 14:39	15°8'00"00	
retrograde	5042 Aug 05 00:38	6°8'45"43		min. Earth dist.	5050 Nov 03 12:24	14°8'51"51	44.67450 AU
min. Earth dist.	5042 Oct 24 22:37	5°8'44"18	43.18726 AU	opposition	5050 Nov 05 23:33	14°8'48"56	-16°-35'-51
opposition	5042 Oct 27 15:50	5°8'41"01	-15°-39'-24	direct	5051 Jan 26 11:00	13°8'46"49	
direct	5043 Jan 17 03:00	4°8'37"31			5051 Apr 20 20:15	15°8'	
conjunction	5043 Apr 25 18:09	6°8'14"50	-15°-2'-25	conjunction	5051 May 04 19:33	15°8'20"48	-15°-56'-19
minimum elong	5043 Apr 25 18:03	6°8'14"50	15°02'26	minimum elong	5051 May 04 19:30	15°8'20"48	15°56'22
max. Earth dist.	5043 Apr 28 11:00	6°8'19"01	45.21561 AU	max. Earth dist.	5051 May 07 07:35	15°8'24"33	46.67828 AU
retrograde	5043 Aug 06 12:28	7°8'55"39		retrograde	5051 Aug 15 07:48	16°8'58"24	
min. Earth dist.	5043 Oct 26 10:29	6°8'54"21	43.38663 AU	min. Earth dist.	5051 Nov 04 22:34	15°8'58"01	44.84233 AU
opposition	5043 Oct 29 02:37	6°8'51"08	-15°-47'-54	opposition	5051 Nov 07 08:33	15°8'55"09	-16°-41'-8
direct	5044 Jan 18 11:00	5°8'47"51			5052 Jan 03 11:34	15°8'00"00	
				direct	5052 Jan 27 23:04	14°8'53"11	
conjunction	5044 Apr 26 03:54	7°8'24"43	-15°-10'-32		5052 Feb 20 23:23	15°8'	
minimum elong	5044 Apr 26 03:48	7°8'24"43	15°10'34				
max. Earth dist.	5044 Apr 28 20:51	7°8'28"54	45.41233 AU	conjunction	5052 May 05 03:50	16°8'26"47	-16°-1'-21
retrograde	5044 Aug 06 19:27	9°8'05"07		minimum elong	5052 May 05 03:47	16°8'26"46	16°01'23
min. Earth dist.	5044 Oct 26 21:11	8°8'04"00	43.58301 AU	max. Earth dist.	5052 May 07 14:26	16°8'30"26	46.84388 AU
opposition	5044 Oct 29 13:02	8°8'00"47	-15°-55'-57	retrograde	5052 Aug 15 17:44	18°8'04"01	
direct	5045 Jan 18 23:34	6°8'57"42		min. Earth dist.	5052 Nov 05 06:52	17°8'03"47	45.00740 AU
				opposition	5052 Nov 07 17:18	17°8'00"54	-16°-46'-2
conjunction	5045 Apr 27 13:26	8°8'34"10	-15°-18'-13	direct	5053 Jan 28 07:23	15°8'59"05	
minimum elong	5045 Apr 27 13:21	8°8'34"09	15°18'14				
max. Earth dist.	5045 Apr 30 04:52	8°8'38"14	45.60581 AU	conjunction	5053 May 06 12:01	17°8'32"20	-16°-6'-1
retrograde	5045 Aug 08 03:49	10°8'14"09		minimum elong	5053 May 06 11:59	17°8'32"20	16°06'03
min. Earth dist.	5045 Oct 28 07:46	9°8'13"11	43.77599 AU	max. Earth dist.	5053 May 08 22:42	17°8'35"58	47.00674 AU
opposition	5045 Oct 30 23:12	9°8'10"00	-16°-3'-35	retrograde	5053 Aug 17 04:30	19°8'09"14	
direct	5046 Jan 20 10:46	8°8'07"07		min. Earth dist.	5053 Nov 06 16:59	18°8'09"04	45.16982 AU
				opposition	5053 Nov 09 01:53	18°8'06"16	-16°-50'-32
conjunction	5046 Apr 28 22:58	9°8'43"10	-15°-25'-30	direct	5054 Jan 29 14:10	17°8'04"37	
minimum elong	5046 Apr 28 22:52	9°8'43"10	15°25'32				
max. Earth dist.	5046 May 01 14:45	9°8'47"14	45.79557 AU	conjunction	5054 May 07 20:05	18°8'37"31	-16°-10'-17
retrograde	5046 Aug 09 12:32	11°8'22"46		minimum elong	5054 May 07 20:03	18°8'37"31	16°10'18

max. Earth dist.	5054 May 10 06:25	18° 8 41'07	47.16720 AU	opposition	5062 Nov 19 00:35	27° 8 40'55	-17°-15'-13
retrograde	5054 Aug 18 11:29	20° 8 14'05		direct	5063 Feb 08 15:07	26° 8 40'31	
min. Earth dist.	5054 Nov 08 01:04	19° 8 14'05	45.32958 AU				
opposition	5054 Nov 10 10:18	19° 8 11'17	-16°-54'-39	conjunction	5063 May 17 15:01	28° 8 10'41	-16°-33'-43
direct	5055 Jan 30 21:58	18° 8 09'48		minimum elong	5063 May 17 15:01	28° 8 10'41	16°33'44
				max. Earth dist.	5063 May 19 17:35	28° 8 13'43	48.44019 AU
conjunction	5055 May 09 03:46	19° 8 42'23	-16°-14'-12	retrograde	5063 Aug 28 04:50	29° 8 44'33	
minimum elong	5055 May 09 03:44	19° 8 42'22	16°14'14	min. Earth dist.	5063 Nov 18 07:41	28° 8 45'15	46.58750 AU
max. Earth dist.	5055 May 11 12:56	19° 8 45'54	47.32493 AU	opposition	5063 Nov 20 07:46	28° 8 42'56	-17°-16'-23
retrograde	5055 Aug 19 18:37	21° 8 18'38		direct	5064 Feb 09 23:25	27° 8 42'37	
min. Earth dist.	5055 Nov 09 10:17	20° 8 18'45	45.48659 AU				
opposition	5055 Nov 11 18:42	20° 8 16'00	-16°-58'-23	conjunction	5064 May 17 21:52	29° 8 12'29	-16°-34'-47
direct	5056 Feb 01 05:51	19° 8 14'41		minimum elong	5064 May 17 21:54	29° 8 12'29	16°34'49
				max. Earth dist.	5064 May 19 23:39	29° 8 15'28	48.56003 AU
conjunction	5056 May 09 11:39	20° 8 46'58	-16°-17'-45		5064 Jun 21 13:45	0° II	
minimum elong	5056 May 09 11:39	20° 8 46'58	16°17'46	retrograde	5064 Aug 28 11:57	0° II 46'03	
max. Earth dist.	5056 May 11 21:17	20° 8 50'30	47.47973 AU		5064 Nov 07 00:30	30° R 8	
retrograde	5056 Aug 19 23:59	22° 8 22'55		min. Earth dist.	5064 Nov 18 14:08	29° 8 46'51	46.70588 AU
min. Earth dist.	5056 Nov 09 19:31	21° 8 23'09	45.64021 AU	opposition	5064 Nov 20 14:26	29° 8 44'31	-17°-17'-13
opposition	5056 Nov 12 02:43	21° 8 20'27	-17°-1'-45	direct	5065 Feb 10 05:11	28° 8 44'17	
direct	5057 Feb 01 16:32	20° 8 19'18			5065 May 09 11:14	0° II	
conjunction	5057 May 10 19:18	21° 8 51'17	-16°-20'-57	conjunction	5065 May 19 04:28	0° II 13'53	-16°-35'-32
minimum elong	5057 May 10 19:17	21° 8 51'17	16°20'59	minimum elong	5065 May 19 04:30	0° II 13'53	16°35'33
max. Earth dist.	5057 May 13 03:11	21° 8 54'43	47.63101 AU	max. Earth dist.	5065 May 21 04:59	0° II 16'47	48.67673 AU
retrograde	5057 Aug 21 08:43	23° 8 26'58		retrograde	5065 Aug 29 19:31	1° II 47'10	
min. Earth dist.	5057 Nov 11 03:31	22° 8 27'21	45.79004 AU	min. Earth dist.	5065 Nov 19 22:08	0° II 48'00	46.82134 AU
opposition	5057 Nov 13 10:41	22° 8 24'40	-17°-4'-47	opposition	5065 Nov 21 21:16	0° II 45'44	-17°-17'-44
direct	5058 Feb 03 00:23	21° 8 23'41			5066 Jan 05 22:40	30° R 8	
				direct	5066 Feb 11 10:01	29° 8 45'36	
conjunction	5058 May 12 02:48	22° 8 55'22	-16°-23'-50		5066 Mar 19 09:07	0° II	
minimum elong	5058 May 12 02:48	22° 8 55'22	16°23'51				
max. Earth dist.	5058 May 14 10:22	22° 8 58'46	47.77806 AU	conjunction	5066 May 20 10:57	1° II 14'56	-16°-35'-58
retrograde	5058 Aug 22 18:17	24° 8 30'46		minimum elong	5066 May 20 11:00	1° II 14'57	16°36'00
min. Earth dist.	5058 Nov 12 13:31	23° 8 31'13	45.93532 AU	max. Earth dist.	5066 May 22 11:56	1° II 17'51	48.79064 AU
opposition	5058 Nov 14 18:41	23° 8 28'38	-17°-7'-29	retrograde	5066 Aug 30 23:09	2° II 47'58	
direct	5059 Feb 04 08:09	22° 8 27'48		min. Earth dist.	5066 Nov 21 05:28	1° II 48'52	46.93381 AU
				opposition	5066 Nov 23 03:55	1° II 46'38	-17°-17'-55
conjunction	5059 May 13 10:25	23° 8 59'11	-16°-26'-24	direct	5067 Feb 12 17:59	0° II 46'37	
minimum elong	5059 May 13 10:24	23° 8 59'11	16°26'26				
max. Earth dist.	5059 May 15 16:53	24° 8 02'30	47.92047 AU	conjunction	5067 May 21 17:19	2° II 15'42	-16°-36'-5
retrograde	5059 Aug 24 03:41	25° 8 34'17		minimum elong	5067 May 21 17:23	2° II 15'42	16°36'07
min. Earth dist.	5059 Nov 13 21:32	24° 8 34'50	46.07554 AU	max. Earth dist.	5067 May 23 16:39	2° II 18'31	48.90173 AU
opposition	5059 Nov 16 02:21	24° 8 32'17	-17°-9'-52	retrograde	5067 Sep 01 05:24	3° II 48'29	
direct	5060 Feb 05 13:14	23° 8 31'35		min. Earth dist.	5067 Nov 22 11:58	2° II 49'30	47.04344 AU
				opposition	5067 Nov 24 10:23	2° II 47'17	-17°-17'-47
conjunction	5060 May 13 17:47	25° 8 02'41	-16°-28'-40	direct	5068 Feb 14 00:25	1° II 47'22	
minimum elong	5060 May 13 17:49	25° 8 02'41	16°28'42				
max. Earth dist.	5060 May 15 22:32	25° 8 05'53	48.05763 AU	conjunction	5068 May 21 23:43	3° II 16'14	-16°-35'-54
retrograde	5060 Aug 24 11:55	26° 8 37'28		minimum elong	5068 May 21 23:46	3° II 16'14	16°35'57
min. Earth dist.	5060 Nov 14 06:44	25° 8 38'04	46.21052 AU	max. Earth dist.	5068 May 23 22:59	3° II 19'02	49.00972 AU
opposition	5060 Nov 16 10:02	25° 8 35'36	-17°-11'-57	retrograde	5068 Sep 01 12:01	4° II 48'48	
direct	5061 Feb 05 19:12	24° 8 35'00		min. Earth dist.	5068 Nov 22 20:16	3° II 49'51	47.14967 AU
				opposition	5068 Nov 24 16:52	3° II 47'43	-17°-17'-20
conjunction	5061 May 15 01:09	26° 8 05'47	-16°-30'-39	direct	5069 Feb 14 08:40	2° II 47'55	
minimum elong	5061 May 15 01:09	26° 8 05'47	16°30'40				
max. Earth dist.	5061 May 17 05:41	26° 8 08'58	48.18964 AU	conjunction	5069 May 23 06:02	4° II 16'35	-16°-35'-26
retrograde	5061 Aug 25 14:50	27° 8 40'16		minimum elong	5069 May 23 06:06	4° II 16'35	16°35'27
min. Earth dist.	5061 Nov 15 15:18	26° 8 40'54	46.34032 AU	max. Earth dist.	5069 May 25 04:19	4° II 19'19	49.11425 AU
opposition	5061 Nov 17 17:21	26° 8 38'29	-17°-13'-44	retrograde	5069 Sep 02 20:10	5° II 48'56	
direct	5062 Feb 07 05:59	25° 8 37'59		min. Earth dist.	5069 Nov 24 02:27	4° II 50'06	47.25205 AU
				opposition	5069 Nov 25 23:01	4° II 47'59	-17°-16'-36
conjunction	5062 May 16 08:10	27° 8 08'28	-16°-32'-20	direct	5070 Feb 15 13:17	3° II 48'18	
minimum elong	5062 May 16 08:12	27° 8 08'28	16°32'22				
max. Earth dist.	5062 May 18 10:47	27° 8 11'31	48.31696 AU	conjunction	5070 May 24 12:13	5° II 16'46	-16°-34'-41
retrograde	5062 Aug 26 20:42	28° 8 42'37		minimum elong	5070 May 24 12:16	5° II 16'47	16°34'43
min. Earth dist.	5062 Nov 16 22:45	27° 8 43'20	46.46583 AU	max. Earth dist.	5070 May 26 09:02	5° II 19'25	49.21461 AU

retrograde	5070 Sep 04 04:41	6°II48'55		direct	5079 Feb 24 19:46	12°II41'47	
min. Earth dist.	5070 Nov 25 10:32	5°II50'07	47.35010 AU				
opposition	5070 Nov 27 05:20	5°II48'06	-17°-15'-36	conjunction	5079 Jun 02 16:30	14°II08'34	-16°-16'-17
direct	5071 Feb 16 16:24	4°II48'32		minimum elong	5079 Jun 02 16:36	14°II08'34	16°16'20
				max. Earth dist.	5079 Jun 04 05:17	14°II10'41	49.91714 AU
conjunction	5071 May 25 18:28	6°II16'49	-16°-33'-40	retrograde	5079 Sep 13 04:30	15°II38'58	
minimum elong	5071 May 25 18:34	6°II16'49	16°33'41	min. Earth dist.	5079 Dec 04 21:08	14°II40'31	48.03163 AU
max. Earth dist.	5071 May 27 15:03	6°II19'26	49.31035 AU	opposition	5079 Dec 06 08:18	14°II38'51	-16°-54'-38
retrograde	5071 Sep 05 08:20	7°II48'45		direct	5080 Feb 26 00:58	13°II39'57	
min. Earth dist.	5071 Nov 26 17:44	6°II50'01	47.44301 AU				
opposition	5071 Nov 28 11:29	6°II48'02	-17°-14'-20	conjunction	5080 Jun 02 21:53	15°II06'36	-16°-12'-54
direct	5072 Feb 18 00:26	5°II48'35		minimum elong	5080 Jun 02 22:01	15°II06'36	16°12'55
				max. Earth dist.	5080 Jun 04 09:24	15°II08'39	49.97831 AU
conjunction	5072 May 26 00:39	7°II16'40	-16°-32'-24	retrograde	5080 Sep 13 13:42	16°II36'50	
minimum elong	5072 May 26 00:43	7°II16'40	16°32'26	min. Earth dist.	5080 Dec 05 03:56	15°II38'24	48.09061 AU
max. Earth dist.	5072 May 27 18:51	7°II19'08	49.40090 AU	opposition	5080 Dec 06 13:28	15°II36'50	-16°-50'-55
retrograde	5072 Sep 05 12:53	8°II48'24		direct	5081 Feb 26 02:26	14°II38'00	
min. Earth dist.	5072 Nov 27 00:29	7°II49'43	47.53072 AU				
opposition	5072 Nov 28 17:24	7°II47'47	-17°-12'-48	conjunction	5081 Jun 04 03:23	16°II04'31	-16°-9'-15
direct	5073 Feb 18 07:51	6°II48'24		minimum elong	5081 Jun 04 03:29	16°II04'32	16°09'18
				max. Earth dist.	5081 Jun 05 14:51	16°II06'34	50.03614 AU
conjunction	5073 May 27 06:46	8°II16'17	-16°-30'-53	retrograde	5081 Sep 14 17:46	17°II34'38	
minimum elong	5073 May 27 06:52	8°II16'17	16°30'55	min. Earth dist.	5081 Dec 06 09:44	16°II36'14	48.14579 AU
max. Earth dist.	5073 May 29 00:34	8°II18'44	49.48622 AU	opposition	5081 Dec 07 18:34	16°II34'42	-16°-46'-57
retrograde	5073 Sep 06 19:10	9°II47'49		direct	5082 Feb 27 07:51	15°II35'57	
min. Earth dist.	5073 Nov 28 08:30	8°II49'07	47.61328 AU				
opposition	5073 Nov 29 23:23	8°II47'16	-17°-11'-2	conjunction	5082 Jun 05 08:33	17°II02'22	-16°-5'-21
direct	5074 Feb 19 15:48	7°II47'58		minimum elong	5082 Jun 05 08:41	17°II02'22	16°05'23
				max. Earth dist.	5082 Jun 06 18:01	17°II04'17	50.08994 AU
conjunction	5074 May 28 12:33	9°II15'38	-16°-29'-8	retrograde	5082 Sep 15 21:20	18°II32'20	
minimum elong	5074 May 28 12:38	9°II15'38	16°29'09	opposition	5082 Dec 08 23:42	17°II32'29	-16°-42'-43
max. Earth dist.	5074 May 30 05:06	9°II18'00	49.56684 AU	min. Earth dist.	5082 Dec 07 15:45	17°II33'59	48.19669 AU
retrograde	5074 Sep 08 02:16	10°II46'58		direct	5083 Feb 28 13:09	16°II33'49	
min. Earth dist.	5074 Nov 29 14:10	9°II48'20	47.69135 AU				
opposition	5074 Dec 01 05:08	9°II46'29	-17°-9'00	conjunction	5083 Jun 06 14:04	18°II00'06	-16°-1'-14
direct	5075 Feb 20 20:55	8°II47'14		minimum elong	5083 Jun 06 14:10	18°II00'06	16°01'16
				max. Earth dist.	5083 Jun 07 23:01	18°II02'00	50.13898 AU
conjunction	5075 May 29 18:18	10°II14'43	-16°-27'-6	retrograde	5083 Sep 17 01:05	19°II29'57	
minimum elong	5075 May 29 18:24	10°II14'43	16°27'09	min. Earth dist.	5083 Dec 08 22:56	18°II31'34	48.24248 AU
max. Earth dist.	5075 May 31 09:31	10°II16'59	49.64322 AU	opposition	5083 Dec 10 04:46	18°II30'10	-16°-38'-17
retrograde	5075 Sep 09 09:32	11°II45'49		direct	5084 Feb 29 20:56	17°II31'33	
min. Earth dist.	5075 Nov 30 21:30	10°II47'10	47.76563 AU				
opposition	5075 Dec 02 10:48	10°II45'25	-17°-6'-41	conjunction	5084 Jun 06 19:32	18°II57'43	-15°-56'-53
direct	5076 Feb 22 00:21	9°II46'14		minimum elong	5084 Jun 06 19:41	18°II57'43	15°56'55
				max. Earth dist.	5084 Jun 08 02:50	18°II59'31	50.18289 AU
conjunction	5076 May 30 00:05	11°II13'31	-16°-24'-49	retrograde	5084 Sep 17 07:19	20°II27'25	
minimum elong	5076 May 30 00:11	11°II13'31	16°24'50	min. Earth dist.	5084 Dec 09 04:09	19°II29'05	48.28285 AU
max. Earth dist.	5076 May 31 15:27	11°II15'48	49.71616 AU	opposition	5084 Dec 10 09:44	19°II27'42	-16°-33'-37
retrograde	5076 Sep 09 12:39	12°II44'25		direct	5085 Mar 02 02:20	18°II29'07	
min. Earth dist.	5076 Dec 01 03:33	11°II45'49	47.83646 AU				
opposition	5076 Dec 02 16:17	11°II44'05	-17°-4'-6	conjunction	5085 Jun 08 00:47	19°II55'09	-15°-52'-19
direct	5077 Feb 22 05:55	10°II44'57		minimum elong	5085 Jun 08 00:54	19°II55'10	15°52'21
				max. Earth dist.	5085 Jun 09 06:15	19°II56'50	50.22128 AU
conjunction	5077 May 31 05:34	12°II12'04	-16°-22'-15	retrograde	5085 Sep 18 14:21	21°II24'43	
minimum elong	5077 May 31 05:41	12°II12'04	16°22'17	min. Earth dist.	5085 Dec 10 11:16	20°II26'19	48.31792 AU
max. Earth dist.	5077 Jun 01 19:09	12°II14'15	49.78594 AU	opposition	5085 Dec 11 14:43	20°II25'02	-16°-28'-44
retrograde	5077 Sep 10 17:20	13°II42'47		direct	5086 Mar 03 05:56	19°II26'29	
min. Earth dist.	5077 Dec 02 09:12	12°II44'14	47.90439 AU				
opposition	5077 Dec 03 21:40	12°II42'31	-17°-1'-13	conjunction	5086 Jun 09 06:06	20°II52'24	-15°-47'-32
direct	5078 Feb 23 11:17	11°II43'27		minimum elong	5086 Jun 09 06:15	20°II52'24	15°47'35
				max. Earth dist.	5086 Jun 10 11:22	20°II54'04	50.25473 AU
conjunction	5078 Jun 01 11:06	13°II10'24	-16°-19'-25	retrograde	5086 Sep 19 18:29	22°II21'48	
minimum elong	5078 Jun 01 11:13	13°II10'24	16°19'26	opposition	5086 Dec 12 19:31	21°II22'10	-16°-23'-37
max. Earth dist.	5078 Jun 03 00:43	13°II12'35	49.85287 AU	min. Earth dist.	5086 Dec 11 16:48	21°II23'25	48.34817 AU
retrograde	5078 Sep 11 21:17	14°II40'58		direct	5087 Mar 04 10:17	20°II23'37	
min. Earth dist.	5078 Dec 03 16:06	13°II42'25	47.96945 AU				
opposition	5078 Dec 05 03:05	13°II40'46	-16°-58'-4	conjunction	5087 Jun 10 11:08	21°II49'25	-15°-42'-32

minimum elong	5087 Jun 10 11:15	21°II49'26	15°42'33	retrograde	5095 Sep 28 16:36	0°☾51'03	
max. Earth dist.	5087 Jun 11 14:15	21°II50'58	50.28372 AU		5095 Dec 14 04:27	30°☿II	
retrograde	5087 Sep 20 23:04	23°II18'41		opposition	5095 Dec 21 12:39	29°II51'51	-15°-26'-28
min. Earth dist.	5087 Dec 12 22:18	22°II20'17	48.37433 AU	min. Earth dist.	5095 Dec 20 19:10	29°II52'40	48.45868 AU
opposition	5087 Dec 14 00:17	22°II19'05	-16°-18'-15	direct	5096 Mar 12 03:56	28°II53'39	
direct	5088 Mar 04 14:39	21°II20'33			5096 Jun 04 06:12	0°☾	
conjunction	5088 Jun 10 16:19	22°II46'15	-15°-37'-17	conjunction	5096 Jun 18 08:16	0°☾18'58	-14°-46'-38
minimum elong	5088 Jun 10 16:28	22°II46'15	15°37'19	minimum elong	5096 Jun 18 08:25	0°☾18'59	14°46'39
max. Earth dist.	5088 Jun 11 19:14	22°II47'47	50.30874 AU	max. Earth dist.	5096 Jun 19 03:07	0°☾20'02	50.38578 AU
retrograde	5088 Sep 21 01:54	24°II15'24		retrograde	5096 Sep 28 21:48	1°☾47'38	
min. Earth dist.	5088 Dec 13 04:36	23°II16'58	48.39672 AU	opposition	5096 Dec 21 16:56	0°☾48'28	-15°-18'-58
opposition	5088 Dec 14 04:53	23°II15'49	-16°-12'-39	min. Earth dist.	5096 Dec 21 00:23	0°☾49'15	48.44950 AU
direct	5089 Mar 05 21:51	22°II17'20			5097 Feb 10 22:26	30°☿II	
conjunction	5089 Jun 11 21:22	23°II42'55	-15°-31'-48	direct	5097 Mar 13 07:02	29°II50'16	
minimum elong	5089 Jun 11 21:31	23°II42'56	15°31'49		5097 Apr 12 09:38	0°☾	
max. Earth dist.	5089 Jun 12 23:17	23°II44'24	50.33046 AU	conjunction	5097 Jun 19 13:14	1°☾15'34	-14°-39'-19
retrograde	5089 Sep 22 07:30	25°II11'59		minimum elong	5097 Jun 19 13:25	1°☾15'35	14°39'21
min. Earth dist.	5089 Dec 14 08:59	24°II13'35	48.41590 AU	max. Earth dist.	5097 Jun 20 05:35	1°☾16'30	50.37508 AU
opposition	5089 Dec 15 09:27	24°II12'27	-16°-6'-48	retrograde	5097 Sep 30 02:25	2°☾44'10	
direct	5090 Mar 07 03:05	23°II13'58		opposition	5097 Dec 22 21:23	1°☾45'00	-15°-11'-16
conjunction	5090 Jun 13 02:09	24°II39'30	-15°-26'-3	min. Earth dist.	5097 Dec 22 05:57	1°☾45'43	48.43501 AU
minimum elong	5090 Jun 13 02:19	24°II39'30	15°26'06	direct	5098 Mar 14 10:18	0°☾46'47	
max. Earth dist.	5090 Jun 14 02:48	24°II40'54	50.34898 AU	conjunction	5098 Jun 20 18:09	2°☾12'03	-14°-31'-48
retrograde	5090 Sep 23 16:00	26°II08'28		minimum elong	5098 Jun 20 18:19	2°☾12'03	14°31'49
opposition	5090 Dec 16 14:11	25°II08'59	-16°00'-41	max. Earth dist.	5098 Jun 21 09:58	2°☾12'56	50.35915 AU
min. Earth dist.	5090 Dec 15 15:18	25°II10'03	48.43204 AU	retrograde	5098 Oct 01 04:23	3°☾40'35	
direct	5091 Mar 08 04:45	24°II10'33		opposition	5098 Dec 24 01:50	2°☾41'25	-15°-3'-21
conjunction	5091 Jun 14 07:14	25°II36'01	-15°-20'-4	min. Earth dist.	5098 Dec 23 12:16	2°☾42'03	48.41549 AU
minimum elong	5091 Jun 14 07:23	25°II36'02	15°20'06	direct	5099 Mar 15 17:00	1°☾43'10	
max. Earth dist.	5091 Jun 15 07:58	25°II37'26	50.36459 AU	conjunction	5099 Jun 21 23:08	3°☾08'23	-14°-24'-4
retrograde	5091 Sep 24 20:35	27°II04'55		minimum elong	5099 Jun 21 23:19	3°☾08'23	14°24'06
opposition	5091 Dec 17 18:36	26°II05'29	-15°-54'-19	max. Earth dist.	5099 Jun 22 13:43	3°☾09'12	50.33871 AU
min. Earth dist.	5091 Dec 16 20:06	26°II06'32	48.44506 AU	retrograde	5099 Oct 02 08:06	4°☾36'52	
direct	5092 Mar 08 08:28	25°II07'07		opposition	5099 Dec 25 05:57	3°☾37'40	-14°-55'-13
conjunction	5092 Jun 14 12:09	26°II32'32	-15°-13'-50	min. Earth dist.	5099 Dec 24 16:33	3°☾38'18	48.39174 AU
minimum elong	5092 Jun 14 12:18	26°II32'33	15°13'53	direct	5100 Mar 16 23:46	2°☾39'23	
max. Earth dist.	5092 Jun 15 10:58	26°II33'50	50.37707 AU	conjunction	5100 Jun 23 04:02	4°☾04'34	-14°-16'-6
retrograde	5092 Sep 25 00:22	28°II01'22		minimum elong	5100 Jun 23 04:12	4°☾04'35	14°16'08
opposition	5092 Dec 17 23:09	27°II02'01	-15°-47'-42	max. Earth dist.	5100 Jun 23 16:57	4°☾05'18	50.31417 AU
min. Earth dist.	5092 Dec 17 01:28	27°II03'01	48.45484 AU	retrograde	5100 Oct 03 15:51	5°☾33'00	
direct	5093 Mar 09 12:41	26°II03'41		opposition	5100 Dec 26 10:18	4°☾33'48	-14°-46'-50
conjunction	5093 Jun 15 17:04	27°II29'05	-15°-7'-22	min. Earth dist.	5100 Dec 25 22:42	4°☾34'20	48.36426 AU
minimum elong	5093 Jun 15 17:15	27°II29'05	15°07'23				
max. Earth dist.	5093 Jun 16 15:41	27°II30'22	50.38596 AU				
retrograde	5093 Sep 26 02:53	28°II57'52					
min. Earth dist.	5093 Dec 18 07:40	27°II59'30	48.46072 AU				
opposition	5093 Dec 19 03:40	27°II58'34	-15°-40'-51				
direct	5094 Mar 10 20:16	27°II00'18					
conjunction	5094 Jun 16 22:04	28°II25'41	-15°00'-40				
minimum elong	5094 Jun 16 22:13	28°II25'41	15°00'42				
max. Earth dist.	5094 Jun 17 19:18	28°II26'53	50.39091 AU				
retrograde	5094 Sep 27 09:08	29°II54'26					
opposition	5094 Dec 20 08:03	28°II55'12	-15°-33'-46				
min. Earth dist.	5094 Dec 19 12:19	28°II56'07	48.46226 AU				
direct	5095 Mar 12 01:07	27°II56'58					
conjunction	5095 Jun 18 03:02	29°II22'19	-14°-53'-45				
minimum elong	5095 Jun 18 03:13	29°II22'20	14°53'46				
max. Earth dist.	5095 Jun 18 22:31	29°II23'25	50.39100 AU				
	5095 Jul 16 17:50	0°☾					